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LEARNING TO EARN

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A Plea and a Plan for Vocational Education

By

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INTRODUCTION

We are as a people the Wasters of the World and are the Prodigal Son among the Nations. We save enormously every year but waste far more than we save. It seems to be in our national temperament almost to rejoice in the prodigality with which we expend our resources or in the happy carelessness with which we allow them to go unused.

We do not confine ourselves, however, to wasting material things. We waste life as no others do.

The annual toll of those who are killed and wounded by vehicles in the streets of New York alone would dim the records of many a sanguinary battlefield. Many a war has come, has run its bloody course and has ended without as many victims in killed and wounded as our industries show each year. There are among us excellent people quite disturbed over bloodshed in time of war who have little to say respecting the bloodshed in times of peace. It is true that "safety first" is becoming a familiar motto, but it is also true that the warning falls too often on heedless ears and that the daily sacrifice goes on.

There are ways of wasting however, very sad ways of wasting indeed, which the above do not include. There is a way of killing the best in life while the body goes on living, and we have been sin-

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gularly skilful in these injurious processes. It is easy to smile at the savage who sets up his grotesque totem pole, believing that thereby he secures the protection of the friendly spirits, but there are national totems as well as tribal and individual ones, and there is a certain danger that we may worship them nearly or quite as blindly as the savage at whom we smile.

When we look with frankness and without bias at the results in terms of life of what we are pleased to call education, the question will naturally arise whether this thing of which we are so proud is not as respects most of those who are subjected to its processes something of a grotesque totem set on a pole for us unintelligently to admire. True it works admirably for the few. That is, for the few reckoned in proportion to the whole. One would not lightly minimize its value for this small proportion of our people nor say aught that would injure the justly high estimation in which the fine work of the instructor in many a useful institution is held. The value of his services to the public is such as to make us desire to widen its scope and extend its benign influence. The difficulty is that the fruitful work of the educator reaches at its best far too small a minority among us while it is essential, deeply essential that its influence should be vastly extended.

When it is pointed out that a half million physical lives or more are lost among us each year through preventable disease, we feel a certain sense of shock

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and the publicist comes to the aid of preventive medicine to say these things ought not so to be and to join in strong and unselfish attack on the conditions that permit such things to continue.

We are just beginning to realize that by the failure of some phases of our educational systems to meet the living needs of living boys and girls, we are permitting them to enter a sort of death in life which is having most hurtful effects on our country. Our complacency over the value of the common school to our people is being rudely disturbed, for many if not most of our young people emerge from that same common school quite without adjustment to the daily life they must thereafter lead, and almost if not altogether without the training fitting them for the workaday world in which they must live.

There is no cleavage between vocational education and academic education nor aught of hostility. The two are fellows and akin. They stand in a helpful and not in a hurtful relation one to the other. Nay, it is because academic education at its best has produced such noble fruits that the need is more manifest for the other type of training for those who in different spheres find academic education neither practicable nor essential. The life in industry, in trades, in the home, on the farm, needs and does not yet receive the corresponding training in principle and practise that is given to the lawyer, the physician and the engineer. It is not the same education that is needed for all these either in kind or in de-

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gree, but it is similar in spirit and in purpose and has for its outlook that the student shall be prepared for the environment which is normal to him.

Therefore, this book is to be commended as a thoughtful study concerning things that are greatly needed among us, and as giving an impetus to thought that can only be helpful. None of us can be satisfied to allow things to remain educationally as they are; to permit our children to go out into a life which is a blind alley; to reach a mental "impassé" before maturity is well begun. The path of danger lies that way, and he renders a service to his country who calls a halt and directs our thinking as to how we may avoid the peril. There can be no doubt that when we come to realize the need for greater extensiveness of training for the work of life both for men and women, we shall take the steps which shall make that not only possible but certain. To this happy progress this book points the way. Let us hope it will have wide-spread and careful reading.

WILLIAM C. REDFIELD.

Washington, D. C.

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LEARNING TO EARN

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CHAPTER I

WHAT ARE THE PURPOSES OF EDUCATION?

New applications of old ideals—Education as adjustment to environment—What adjustment means—Self-preservation—Earning a living—Citizenship—Home training—Commercial activities—Education for the consumer—Education for leisure—Progressive education needed to meet modern needs.

PROGRESS in human affairs makes necessary a constant restatement of principles in terms which are applicable to new conditions. By such restatement only can certain principles endure in the every-day world. Those principles which can not be made guides for common good under changed conditions are rightly discarded. They may be worshiped as fetishes for a time but practise based upon them can not stand permanently against the demands of the practical mind. Worn-out philosophies must go when they obstruct progress, for progress demands a constant adaptation to the things of to-day and the promise of to-morrow.

No field offers a more striking opportunity for ob-

servations of this character than the subject of this chapter—"What are the purposes of education?" Throughout the ages this question has agitated the minds of schoolmen, philosophers and statesmen. At one time it has been answered and acted upon in one way, at another in a different way. One country and one civilization have adopted one ideal, another a wholly different ideal. The Hebrews sought morality and religion through education; the Athenians aimed at ideal culture; the Spartans sought physical power; the Romans, law, oratory and military prowess; the church in the Middle Ages, preparation for a future state; while modern nations have sought a variety of ends combining many of the ancient ideals with modern needs.

One thing stands out in bold relief in the history of education, namely, that thinkers in all ages have believed in the efficacy of education to attain certain ends. It has always meant power expressed according to the prevailing ideal.

Another characteristic feature of educational philosophy, developed throughout the ages, has been its idealism. "To train men to the fullest expression of their powers," according to the ideal of the time was set up as the end of education. In all cases, however, it was the ideal education of the fortunately circumstanced which philosophers talked about and statesmen promoted. Education was for the few who could profit by the particular education

offered. The many went untaught and the problem of teaching them was scarcely considered and not at all acted upon.

This philosophy of ideal education has come down to us from the past generations and still persists as the basis of our educational practise and dominates the system in which we attempt to educate "all the children of all the people." In other words an inherited scheme of education designed to give the broadest culture and information to the few who have no time limits to their educational opportunities is applied "willy-nilly" to the great mass of children, half of whom leave the school at fourteen years of age.

The present demand is that we refashion our educational philosophy in the light of the actual conditions; that we throw off the shackles of an outworn past; that we restate our educational principles; and address ourselves to the task of determining the end of education in this time and in this country where certain facilities for education are universally provided and attendance at school compelled. We must find modern substitutes for ancient ideals and we must make practical the ideals we set up.

One of the keenest of our present-day educators has declared the ideal of education to be: "What the best and wisest of parents wants for his own child, that must the community want for all its

children. Any other ideal for our schools is unlovely; acted upon, it destroys our democracy."¹

No one would question that the community should offer the opportunity for the fulfillment of this ideal for all its children. This country has offered such opportunity in the system of public schools which afford the chance for the highest development to those who would pursue knowledge to the uttermost. As a working plan, however, the system quite generally fails. It actually works out to the advantage of a small percentage of youth, while to the great majority—fully ninety per cent.—it is little more than a dream.

In recasting our education to meet the demands of a democracy we may well accept the ideal set forth by Dewey and keep open the way from the kindergarten to the university. But we can not be true to that ideal if we worship it and fail to meet the needs of the vast majority of youth who are unable to stay in school even partially to attain the ideal.

With the ideal in mind and the actual conditions understood, our problem is to reassert the established principles of education in terms of universal application. Not merely what we desire for all children but what we can actually accomplish by education for each, should guide us. We must make our educational principles applicable to the education of

¹ Dewey. *The School and Society*, p. 19.

the great mass as we find them and not merely to the education of selected groups. We must not close our minds to the educational needs and rights of the ninety per cent. who do not profit by the system of ideal education which we have set up.

The best we can do is to keep the door of educational opportunity wide open and encourage and help all to enter, and also strive to educate all of the others who for any reason have not been able to profit by the instruction offered.

A theory of perfection will not do if we expect practical results. We are not a nation exclusively of philosophers and our children are not all philosophers in embryo. Variety is almost as great as numbers. No two persons are alike physically and the fact holds true mentally. What will train one to the highest good will fall on sterile ground with another. No educational system of uniform rigid application will meet the needs of a democracy. Such a system must be as varied as the infinite differences of humanity.

An examination of society and of the system of education at once establishes the conclusion that whatever philosophy we build our educational system upon it should be based upon the idea of giving to each person the kind and content of education by which he can profit. Education ought to be suited to the capabilities of each and to avoid an abstract ideal by which the few only may profit.

In seeking the basis of such a philosophy, the idea of education as an adjustment of the individual to his environment has been evolved. The idea is at once universal in its application, and offers the abstract ideal of giving to each the opportunity for the fullest development of which he is capable.

Education as an adjustment of the individual to his environment, as here understood, means not merely adjustment to the material things around him, but also adjustment to the larger life which he must lead as an individual, a member or parent of a family, a member of society and a citizen of the state. Education should bring each individual into harmonious relations with all the activities which go to make up his ordinary life. As expressed by Herbert Spencer² the ultimate test is :

“How to live?—Not how to live in the mere material sense only, but in the widest sense. The general problem which comprehends every special problem is—the right ruling of conduct in all directions under all circumstances. In what way to treat the body; in what way to treat the mind; in what way to manage our affairs; in what way to bring up a family; in what way to behave as a citizen; in what way to utilize all those sources of happiness which nature supplies—how to use all our facilities to the greatest advantage of ourselves and others—how to live completely? And this being the great thing needful for us to learn, is, by consequence, the

² *What Knowledge Is of Most Worth.*

great thing which education has to teach. To prepare us for complete living is the function which education has to discharge; and the only rational mode of judging of any educational course is, to judge in what degree it discharges such function."

Coming to the classification of those activities which essentially make up life, Spencer arranges them as follows: "1. Those activities which directly minister to self-preservation. 2. Those activities which, by securing the necessities of life, indirectly minister to self-preservation. 3. Those activities which have for their end the rearing and discipline of offspring. 4. Those activities which are involved in the maintenance of proper social and political relations. 5. Those miscellaneous activities which make up the leisure part of life, devoted to the gratification of the tastes and feelings."

In a primitive state of society most of this education could be obtained from institutions other than the school. Self-preservation from the ordinary dangers, being largely instinctive, there was little that outside direction could do in this part of education except to protect the child from precipitate dangers to which he was not accustomed. In such a society self-support was learned from actual experience. The son followed his father's footsteps and learned the simple things of the trade or of the field which were needed for self-support. Production for simple needs required no elaborate schooling.

Likewise in the home the child learned the methods of the household and the care of children.

In such a primitive society, as O'Shea points out,³ "where the individual's adaptations to the world is not, relatively speaking, very complex, and consequently when needs are comparatively few each person can look after himself quite completely. The mode of settling difficulties between man and man does not call for much beyond muscular force and so the individual has no need for learning a vast body of intricate laws governing social relations. There is no stock of knowledge or experience relating to the nature and method of treating human ailments which makes the services of a specialist in medicine necessary. So the individual can get what food he needs, can make his own clothing, can build his own hut, and so on."

The social order in this country is no longer primitive. It grows infinitely complex. Each decade brings with it new problems and new duties. Corresponding responsibilities are placed upon society if the ideal of education is to be realized and the mass of individuals adjusted to their environment. Take for example, the new things required to be taught in the simplest phase of education mentioned above—that for self-preservation. Man in the aggregate is no longer a free agent. He can not live unto himself alone. The majority of men

Education as Adjustment, p. 119.

must work in connection with other men, in masses—in the factories, mills and workshops, on highways, railroads, streets and on the farm. They must work with complicated machinery—they are in fact a part of a great machine. Dangers beset them on all sides. They are subjected to the risk of industrial accidents and to the infections of occupational diseases. The very food that sustains them is no longer simple diet, but the product of many lands and of many processes of manufacture. They must know many more facts of physiology and dietetics than their forefathers knew in order to protect their lives and sustain them in vigor. Knowledge for self-preservation is extensive and the individual can not be left to learn by body-breaking experience, the things which organized instruction can give.

How to protect life in all of the varied and complicated world's work; how to prevent the calamities of occupational accidents and diseases, how to make men keener in self-protection and stronger for the struggle of life, all these throw a great and increasing burden upon the agencies of education. Nor does this consist merely in learning a few facts or being trained in the use of safety devices. It is comprehensive of the whole civic and social life and broadly educational in its content and results. Proper education for self-preservation is at once universal, scientific and practical.

To adjust the individual to his environment in the

second great purpose of education, namely, to earn a living, means an entirely different regimen of studies than in the simpler life of the past.

The process of conquering the earth and its potential powers has evolved a new order and continued evolution is bringing changes whose extent we can only dimly foresee. The people of the world earn their livings to-day in hundreds of ways unknown a generation ago. The people of the next generation will add other hundreds of occupations. In these circumstances of growth and change we readily see the task which education must assume if its ends are to be universally obtained and progressively maintained. In former days when the son followed the father to his shop or into the fields and the girl was the mother's apprentice and the young learned the mystery and art of the trade or other vocation from their elders by practise and precept, the need for other educational agencies to fit for earning a living was not apparent. At least it was not a pressing necessity. The system may not have promoted progress as it should, but it gave at least a passable preparation for work.

New economic conditions have changed all of this. Instead of the simple shop where the father or the master carried on his simple trade and taught the mystery and art to his son or to his apprentice, there is the great factory, specialized processes, division of labor, machine production, all resulting in the utter

demoralization of the system of education which formerly prepared the young for their life-work. The achievements of the new industrial day are marvelous, but they are marred by the failure of industrialists and the public to see that the right kind of educational advance goes hand in hand with the new industry, supplying the needs of the workers in the new forms of industry with the education which the former apprenticeship system gave in the old and without which, men become slaves to the machines on which they work. Educational agencies absorbed with the fetishes of a worn-out philosophy of education left industry and the workers severely alone, and industry took advantage of its freedom by exploiting the men and women and the boys and girls, by working them for profit with no thought of an obligation to educate them for permanent and increasing efficiency.

Instead of the nice adjustment which should always exist between education and work, so that the vision of the worker will be constantly enlarged and so that men may become broadly efficient and economically independent, we have been left by the neglect of the past in the sad state where a great majority of our people receive no adequate preparation for earning a living either through educational agencies or in industry itself.

No matter what field of human activity we consider, the same facts strike us forcibly—that the

altered economic conditions have made necessary a corresponding alteration of education if the end of education as adjustment shall be realized. The farm furnishes typical examples. The farmer of a few years ago needed little education other than that learned by experience as a farm laborer or as a farm helper in the farm family régime. Small production largely for home consumption; few farm tools and simple equipment; rich soils and plenty of new lands and few problems of transportation or the sale of products, needed little education on the part of the farmer other than that gained from experience, tutelage by parents and common observation. To-day the vocation of farming, if successful, requires big, practical, scientific, broadly-educated business men. In no calling is so much and such diversified knowledge required. Preparation for this vocation requires a system of education closely adjusted to the needs of the industry in each community and fitted to the capacities of men. Science especially, including chemistry, biology and physics, plays a large part. So does mathematics with particular reference to the formulas for feed, seed, fertilizer and scores of other commodities where mathematical adjustment of parts is essential. Cost accounting is a neglected but necessary guide to a farmer's work, while to get the part of the product which reasonably belongs to him requires that he have knowledge of the economics of production, trans-

portation and marketing. Education to prepare adequately for earning a living on the farm now and in the still more intense future, must keep the balance nicely adjusted between the actual work and the guiding principles of the knowledge suited to the vocation. Education as adjustment to environment should be largely reconstructed to meet the needs of the farmer.

Likewise in the home is found the same expansion of duties. There are increased difficulties and responsibilities of parenthood; an economic necessity for conservation to meet the high cost of living; and the requirements for human efficiency of better food values; to say nothing of the development of the artistic and the beautiful in home life. Some can get a reasonably good education and training at home, but in these days most people must be trained for the home by agencies outside the home.

In the distributive process—the commercial activities—the same conclusions hold with even greater force. On the side of distribution it must be admitted we are fundamentally weak. The solution of the problem of getting the goods to the consumer with the greatest economy has hardly yet been touched. Business has been done largely by “rule of thumb.” It has been imitative and seldom original. Great numbers of business men have been merely soldiers of fortune seeking their chance. By

excessive profits in specialties or in special circumstances, many have succeeded. Those who have grasped the commercial problems and have built solidly upon knowledge—in other words those who have been adjusted to their jobs—are few. No better proof could be furnished—if proof were necessary—than the demoralization of American commerce in the months following the outbreak of the European war. Our commercial adventurers found themselves confused and powerless. It remained for the few who really had grasped the fundamentals of business, who had the requisite knowledge and the vision which goes with it, to bring order out of the chaos.

All through the ranks of business runs the fatal weakness of unpreparedness to meet new conditions. The managers have been trained by rule of thumb, the subordinates have been educated in so-called "business colleges" where the machine grinds out finished products in three months to a year. No rational study of business needs or of workers has ever been made and hence the education of business men and their subordinates has failed to meet the needs of the workers in the commercial life of the present or to build up a solid foundation for business.

Not to multiply examples on this head but to show the universal need of an education for more efficient adjustment in all phases of life, mention must be

made of the new demands upon the more skilled trades, vocations and professions. The lawyer needs a far wider range of matters than his predecessor if he is to serve humanity or to win and hold clients; a physician has infinitely more to learn; a minister of the gospel can not rely upon dogmatic sermons if he is to lead his fellow men; broader and more practical education to adjust them to their whole job should be had by the engineer, teacher, pharmacist, architect and all the other professional vocations, and a clear grasp of social and industrial facts and conditions must be given to all men, whatever their calling, if men are to be adjusted fully to the environment of the present day and to be capable of playing their full part in society.

But every person is a consumer without regard to his status in the vocations as a producer. Men must eat, be clothed, and housed and have the privilege of enjoying all that they are capable of in the leisure of life. They have vocations and work at them to earn enough to live. The object of educating to produce more efficiently is clearly to provide more to consume, whether of food, clothing or enjoyments. Since production and consumption are so closely related, education for each serves the purposes of the other. If men are taught to consume food which conserves the strength and saves the pocketbook, a larger sum is left for clothing, shelter and enjoyments. If clothing and shelter are

wisely and expertly chosen and appropriated, the economy makes possible opportunities for a fuller life. Wise use is certainly as important as efficient production.

Education as adjustment has here its most universal need and clearest possibilities of application. Absolute or approximate universal education for production may be impossible because of the infinite variations of occupations, but education for consumption is simple, homogeneous and easily organized.

Thus, in the all important activities of life connected with making a living and living, as in that of direct self-preservation, an intenser education to bring the individual into harmony with his environment, and to give him possession of the tools of economic independence, is a present and future necessity for individual and social welfare.

When the individual has been trained efficiently in self-preservation and to earn a living, he has the potential capacity for good citizenship. The efficient man is the efficient citizen. Men need to be in a position to serve themselves before they can serve the state. The citizen to-day has upon him a vast and increasing burden. The complexities of society must be understood somewhat, because he must guide his actions in the midst of these complexities. Moreover, democracy has put the responsibility upon every citizen not only to determine his own

course but also to help in determining society's course.

To see that every man in every walk of life is a true civic unit having power as an individual, and insight as a citizen, is one of the foremost duties of our educational system. Not merely the education of the few for leadership in civic affairs, but the enlargement of the civic knowledge of each unit will solve the problems of modern life. Each individual in a democracy is entitled to receive an education which puts him in full command of himself as a worker and a citizen.

Likewise, the education which Spencer advocated to enable the individual to enjoy the leisure time of life must be broadly aimed to touch all persons with its beneficent influence. Not merely that the few may learn to enjoy beauty in a picture, a statue, or a poem, but that all may find wholesome pleasures in their ordinary spheres, is the ideal of education for adjustment.

All phases of life have become more complex and education must lay new foundations and adopt new methods to accomplish its ends. The apprenticeship system has broken down in industry; home training no longer suffices for the majority who are to be home-makers in this day; workers can no longer successfully engage in agriculture or industry if armed only with crude uneducated experience; the lawyer, doctor, teacher and preacher, in fact all

artisans, workers or professional people can not fully realize the ideal unless more broadly educated than by the earlier but now obsolete methods of apprenticeship, office boy, helper or assistant. Outside agencies must engage in placing broad foundations of knowledge under the experience gained in shop or home, farm or profession.

This sort of education must be essentially progressive. It must keep abreast of the times and always with an eye to future development. A system of educational adjustment established to-day and based upon present economic conditions would be out of date in some particulars within a brief space of time and almost wholly obsolete in a few generations.

An example of what happens when the schools are not progressively adjusted, is drawn by Dewey from the problems in compound partnership given in arithmetic up to a short time ago. The compound partnership originated as far back as the sixteenth century as a system of doing business before the days of the joint stock company. "Naturally then compound partnership was taught in the schools. The joint stock company was invented, compound partnership disappeared but the problems relating to it stayed in the arithmetic for two hundred years. They were kept after they had ceased to have practical utility for the sake of mental discipline—they were 'such hard problems you know.'

A great deal of what is now in the arithmetic under the head of percentage is of the same nature. Children of twelve and thirteen years of age go through gain and loss calculations and various forms of bank discounts so complicated that bankers long ago dispensed with them. And when it is pointed out that business is not done that way we hear again of 'mental discipline.' And yet there are plenty of real connections between the experience of children and business conditions which need to be utilized and illuminated."⁴

When we consider the adjustment of the individual to his environment we often think that the environment is static and the adjusting must be entirely on the part of the individual. This is not correct, for we know that man in his reactions upon his environment changes that environment and the concentrated movements of men in the mass change society into a dynamic state. The instrument which adjusts one dynamic body to another and keeps them adjusted must itself be dynamic. Education being that means of adjustment between man and his environment, must continually be adjusting its content and methods to the changing conditions on which it works. Education must be progressive, therefore, if it is to be the adjusting force in society. Teachers, text-books, paraphernalia, materials and meth-

⁴ *School and Society*, pp. 91, 92.

ods must be suited to the time and place, to the individual, and the state of society. If the school be in Porto Rico, it should seek to adjust the pupils to the life of Porto Rico and not to that of Boston. If the school be in a twentieth-century environment, it should draw its content from the twentieth and not from the sixteenth century.

In terms then of modern application the end of education is to train the individual in self-preservation in the multitude of dangers which beset his path; to train him to earn a living and to live under modern conditions of production and distribution; to be an efficient consumer; to conserve the home and care for children; to perform essential duties as a citizen; and to enable each to get the fullest enjoyment from the work which he does as a worker, parent or citizen and to utilize the leisure time of life wisely and happily.

"The world in which most of us live," says John Dewey, "is a world in which everyone has a calling, an occupation, something to do. Some are managers and others are subordinates. But the great thing for one as for the other is that each shall have had the education which enables him to see within his daily work all there is in it of large and human significance."⁵

⁵ *School and Society*, p. 38.

CHAPTER II

PASSING EDUCATION AROUND

Democracy's demand for equality of educational opportunity—Adjustment to environment must be universal—Individual and environment are variable—Education to extend throughout life—Putting knowledge to work—Training people at work—Capacity of all for training—Outline of a universal scheme—Vocational education essential—Influences which have thwarted universal education—Examples to follow—Some critics answered.

NOTHING short of universal education can be the ultimate goal of democracy. Equality of opportunity is the foundation of all society based on democratic principles. We agree that education is a fundamental requirement for equality, and if equality in educational opportunity is to be attained, all sorts of education must be provided to meet the needs of all sorts of people. A democracy must seek to realize, for all education, the ideal of Ezra Cornell for collegiate work expressed in the statement so often quoted: "I would found a university where any person can find instruction in any study." "It is evident," said Lester F. Ward, "that any system of education which falls short, even in the slightest particular, of absolute universality can not proceed

from any true conception of what education is for, or what it is capable of accomplishing."

The truth of these observations will go unchallenged if we agree upon the proposition set forth in the first chapter that true education consists in the adjustment of the individual to his environment. This means the adjustment of the great mass of people and not merely the fortunate few. It means that the system should not be based upon the capabilities and possibilities of the "exceptionally talented, the influential, the fortunately circumstanced, the heirs of plenty and of leisure," but should be based primarily upon average normal human beings. They constitute the great mass which is yet largely untouched by real education.

Education for adjustment must take account of two variables, the individual and the environment. No two people are exactly alike in physical form or adaptability. The variations in the race are infinite. No two people are alike in mentality. Again the variations in the race are infinite. It follows that education which takes account of mental power and physical adaptability must be extremely varied if the real needs of all the people are to be met. Likewise the variations in environment are no less infinite and changes take place with a rapidity that is disturbing to any rigid scheme. Education must therefore, in practical fashion, group the individuals for teaching purposes and lay hold of the more permanent prac-

tises and principles in the environing world of each group and bring the two into as nearly harmonious relations as the variations of both will permit.

Plans for universal education will take account of the fact also that education is not confined to the few years in school, but extends throughout life. Such plans will recognize that "commencement day" is not the end—as most young folks think—but the beginning of education and there will be worked out such a coordination of the school work with the life of the youth, that education will naturally slip over from his school days into his every-day life when he leaves the school. Graduation will mean that the gap between school and work has been bridged and that the youth has joined his mental assets, accumulated through his school studies, with his practical work in profession, trade, or business.

There has been too wide a separation between education and practise. Men have gone on accumulating knowledge; scientists and thinkers have been producing new knowledge; and yet the workers on the other side have done their work without the application of this knowledge which would have meant so much to them. Knowledge and work have each been kept in sealed packages to the hurt of the latter and the uselessness of the former. "So learn that you may do, and so do that you may learn," should be the ideal of universal education in the process of adjusting man to his environment. Universal

education recognizes that education is as much for men who are doing things as for those who are thinking about things.

Enough knowledge is already stored up to revolutionize the practical world if it could only be brought into action. Enough scientific knowledge of agriculture is in printed form to make two blades of grass grow where one grows now if it were effectively put to work; enough of industrial science has been accumulated to bring a new era of efficiency if a channel could be opened to conduct it to the right workers in the office and shop; enough science and art stand ready to improve the millions of homes in the land if the home-makers were given the opportunity to get, and were taught to practise, that part which is useful to them; and enough principles and facts of business are available for the business man to give business a broader, more permanent and more efficient character if they can only be wrought in the right proportions, into the minds and actions of business men.

The task of doing these things rests upon the educational system. The public is deeply concerned that all of these ends be accomplished and the only public instrument available is the educational system already set up for that very purpose, but which has been perverted from this end by lack of insight, true guidance and constant adaptation. The leaders of education on the one hand and of industry,

business, home and farm on the other, have been working independently, resulting in a system of education unarticulated with environment and an environment which fails to get the forming and transforming knowledge of the school.

It can not be too often repeated that education of the sort here outlined must be progressive; constantly adapting itself to new conditions; taking advantage of new knowledge; and bringing about a responsive interaction between knowledge and the vocational work of the persons within its influence.

The intent of education rightly understood and applied, is not merely to instruct the youth, to give them vocational help, and to form their character. It is not merely to make lawyers, doctors, bankers, carpenters, machinists, engineers, farmers or home-makers. It should do those things in thorough fashion, but it should be no less solicitous of the equally large and significant task of educating men and women already engaged in vocational work to be more efficient as workers, home-makers and citizens and more broadly sympathetic with life. To take an apprentice in any line and supply by education the deficiencies of his practical training and make him an all-around man of trade or profession; to make a tradesman a better skilled and more efficient worker; to educate a bank clerk to be a banker; a salesman to be a buyer, a department head or manager; a farmer to utilize the expert knowledge of

his business, or the home manager to conserve the home and its resources; to put within reach of every one the means of bettering himself if he is ambitious and able to profit by the instruction given, is a program to fire the imagination of any person who believes in the power of education to promote for the individual a better and fuller life, and for the nation a sounder and more permanent efficiency.

The argument for universal education is predicated upon the fact that the mass of people are capable of utilizing properly selected data of education which is presented in the right way. Far-seeing German educators and statesmen have realized this fact and have acted upon it to the extent of planning a system of education which recognizes the possibilities of utilizing education in all walks of life. They recognize the differences in capacity of people and they likewise recognize the differences in information possessed by each. Lester F. Ward has put the case for the average man in these words: "The large fund of good sense which is always found among the lower uneducated classes is an obtrusive fact to every observing mind. The ability with which ignorant people employ their small fund of knowledge has surprised many learned men. While there may doubtless be found all grades of intellect from the highest philosopher to the lowest idiot, the number who fall below a certain average standard is insignificant, and so, too, is

the number who rise above it. The great bulk of humanity are fully witted, and amply capable of taking care of themselves if afforded an opportunity."

While recognizing the capacity of the bulk of humanity for training, he also recognized the possibilities of applying education to the widest range of activities. To quote him, "All the activities of life are controlled by laws, all successful enterprises are prosecuted according to certain distinct and unvarying principles. These are empirically, though as a rule not scientifically, known. To co-ordinate them, though perhaps a laborious, is by no means a difficult task. To make them the subject of systematic instruction is not only possible and practicable but in the highest degree desirable—the most general knowledge attainable would have a direct and important bearing upon the most special vocations of life, so that without descending to technical instruction, the greater part of all the most necessary and important practical knowledge of human life might find place in a universal curriculum."

There are several directions in which the educational system must expand if universal education is to be approximated.

First, there should be a broader and richer curriculum in the elementary schools so as to appeal to a wider range of tastes and capabilities and to give to each student more of the elements of the

things which come within the range of his ordinary experience.

Second, education should not stop at the school door. Everything inside should coordinate with the environment of the pupils. The school and the environment ought to act and react upon each other. And this should continue after the pupil has left the school and gone to work. Until the youth is at least eighteen years of age, whether he is at work or not, there should be sustained a direct relation with the school.

Third, many-sided opportunities for vocational education must be given when the youth reaches that age when individualism asserts itself and education in the mass begins to fail.

Fourth, the occupations into which youth enter should be studied and the educational possibilities utilized, for it must be recognized that the principal education which a worker gets is through the work he is doing. So the school must point out what there is in each person's work of educational significance and then use it to interest the workers in the possibilities of continued education.

Fifth, education being a continuing process, scientific care should be taken to encourage the utilization of every means of promoting study correlated with daily experiences in trade, shop, profession, home, farm, or in the civic life of the community. By evening courses, correspondence courses, public

libraries and reading rooms, the chance should be afforded to every one to continue his education all through life.

Under an ideal system of universal education, the youth will receive an education in the elementary school which will give him the tools of knowledge and some power to appreciate the best in the intellectual and civic life; he will receive a broad knowledge of social and industrial affairs and thereby a better insight into the way in which men live and labor, and thereby of the forces which move the world. At the age of fourteen the schools will offer him many-sided opportunities for training in lines suited to his tastes and capacities. He may take further general training preparatory to the higher education or the learned professions; he may begin to prepare for a business career; he may take general industrial courses leading up to the study of a trade; or he may go to work, returning to the school a part of the time for supplementary instruction. At sixteen he is free and the lines of study open to him become more specialized. His previous training, if it has been broad and properly adapted, will have begun at least the process of adjusting him to his environment and will therefore have given him a broader basis upon which to build his choice of a vocation. At this age the youth who is going into a trade has as good a right to the means of education as has the boy who has decided upon a profes-

sion. It is wrong to pave the road to the professions and to leave "the right of way" to the trades and to business and other useful occupations unsurveyed. To do so, sets a false standard. The stamp of approval is put on professional work and the other is negatively disapproved as an object of worthy ambition. As a result, the professions become overcrowded with mediocre men and the skilled trades and occupations with poorly trained men, and great armies of unskilled workers fill the ranks of the unemployed and, unfortunately often, unemployable. Under these conditions, standards are lowered, industry and business languish, governments are corrupted, social unrest is everywhere found and a vicious form of class education is the direct result.

It is one of the anomalies of democracy that that which concerns ninety per cent. of the people should be sacrificed to that which concerns ten per cent. The greatest good to the greatest number is not thus attained. Yet colleges preceded primary schools in this country and received legislative sanction and liberal aid from the state long before free public schools were provided. Thomas Jefferson outlined a system of universal education including free common schools, secondary schools and a college, but the only part of the plan which was adopted was the latter—the University of Virginia. In fact, it was rather late in the last century before our states be-

gan to establish free public schools. But free schools came and eventually compulsory education in most of the states. It looked like the dawn of universal education. But conditions changed so rapidly and the traditional course of study was so rigid that the result was universal education in name but not in substance. A new industrial and social environment demanded a corresponding expansion in education. New needs grew up in the complex condition. Old methods of training for trades, business, farm and home were abandoned or rendered almost obsolete. The apprenticeship system broke down and no agency was left but the school to perform the huge task of adjusting the race to its environment. That which looked like universal education in an earlier time became by social and industrial progression, a partial and inadequate education, for the demands of the new day. Indeed it is doubtful if the schools, viewed from the standpoint of universal education, come as near to filling their true functions in these times as the much less efficient schools did for their times a few generations ago.

The influences which have thwarted the development of universal education are many and subtle. Chief among these are: a wrong idea of the purpose of education; a pedagogy based upon a worn-out philosophy; an educational "standpatism" which refuses to seek the truth; and an aristocracy of educa-

tion which successfully has kept a firm grip on the direction of educational effort. All of these combined have formed a wall of ignorance, cupidity and selfishness which it is very difficult to break through.

Movements have been started for vocational training as a step in universal education. Forthwith we have heard raised the "hue and cry" that *culture*, without any proffer to define the term, is the only worthy end of education. The idealist comes forward and prates about the development of classes, as if no education would preserve a happy state of social equality while a useful education would destroy it. The standpatter declares against doing anything which will require him to think, and lastly the aristocrat, whether of profession, trade, or calling, sees to it that the education given in his particular line shall be not too common.

In such conditions, we have the spectacle of the elementary and high schools, the colleges and universities, driving out the youth who can not jump over the educational hurdles at the right pace. We find many of the professional schools and even trade schools setting up requirements for entrance and in the courses, which have no relation to the study or practise of the professions or trades they teach, but which serve to eliminate some more "unfits." We find the trade school too often catering to the few "learned trades" and aspiring to become a technical

college. And we find agricultural schools and colleges devoting their attention largely to the high-brow farmer and to the turning out of gentlemen farmers and scientific experts, instead of meeting the needs of the man on the farm who can not go to the university but must get what he can within walking distance of home.

In a democracy, the problem of universal education is twofold. While preparing all people to make a living and to live, the educational system must also keep open the way for the humblest to attain the very highest plane which he is capable of reaching. It must prepare not merely for leadership but for the discovery of potential leadership in the mass. All grades of schools should therefore be provided at public expense. It is a mistake to assume that universal education as expressed in vocational education is antagonistic to high schools and colleges. It may change their methods and point of view and make them more efficient, but the purpose is not to destroy but to supplement. The demand is simply that we do for all youth what the high schools and colleges are doing for some by finding out the needs of youth and striving to meet them in practical fashion. Democracy needs efficient education for the rank and file as well as for the leaders.

Observation and common knowledge show that the kind of education by which the mass of people may profit has to do with their occupation or their

life career. Ninety per cent. of the people earn their living with their hands and their chief interest after maturity is in their occupation, their home and the social and civic life of the community.

Not many perhaps have heretofore learned a vocation. Desirable as it may be to do so, not all youth will study a vocation even when the facilities are provided to train them for it. In fact, the number in school who will actually pick an industrial vocation at sixteen will not seriously burden the facilities which the schools may readily provide. It takes foresight and steadiness of purpose to choose a vocation and prepare for it. There is to the boy what seems an easier way. Too often, he takes the path of least resistance and drifts into "blind alley" and "no thoroughfare" jobs. There comes a time in his life, however, when sobered by work and experience, he realizes his handicap and is ready to turn seriously to the means of training himself for better things. This new purpose may come early or it may be delayed, but if the ordained agencies of education are alive to their responsibilities, they will be constantly on the alert to open the way for each individual and provide the means to make the "way out" a reality. The opportunity must be provided for all, for "equality of opportunity is the essence of democracy."

The plan for universal education must frankly recognize, therefore, that practically all education

for youth over fourteen or sixteen years of age who are out of school must be connected with their occupational interests. If their occupation has been chosen wisely, the youth and the adult will find the life-career motive impelling him to perfect himself in the work he is doing, or has been driven to do. If the occupation has not been chosen wisely, there will be a constant effort at readjustment on the part of progressive men and women. Encouragement should be given and the means of education provided both for those who have found a permanent vocation and those who have not, to continue their education in order to seek greater efficiency or a satisfactory adjustment to a better life career. Without such encouragement men and women find their work dreary monotony; hope for the future is dimmed; aimless drifting from job to job results, and social unrest is fomented. The results are disastrous to individual progress and to social welfare.

Universal education seeks to make progress possible for all people, through an articulation of knowledge with the vocational work in which they engage. The knowledge imparted will be simple or complex to fit the needs of the unskilled workers, the skilled artisan, or the trained business or professional man. To realize the ideal of universality, the agencies of education must make a close analysis of the occupations of men without prejudice to the humblest job in which the crudest intellects and most

unskilled hands labor. Even there knowledge and training may be established which will protect life, preserve strength, and make for a more "comfortable subsistence." From the data of occupations a program for a complete system of education may be readily worked out, the guiding purpose of which shall be to give equal, if not identical, opportunity to all "to grow in power and appreciation."

But, it is objected, how can education be made directly applicable to the hundreds of vocations and possible lines of work? Is not the system founded upon a theory of perfection not to be attained? Granted that the problem is a vast one and almost untouched, that is no excuse for delay in undertaking it. The importance of it to the public welfare is so great that no time should be lost on critics who point out its difficulties. "The way to resume is to resume" was a famous phrase and its applicability to our situation is striking.

Happily there are examples in our midst for guidance. Experience has been accumulating until a respectable body of reliable facts and practise may be utilized for our purposes. More than a hundred separate trades are being taught in different public and private schools in this country, not to draw upon the experience of foreign countries where in one city alone—Munich—more than fifty trades are taught. Add to all of these the education which is given as a foundation for several vocations and we

find examples of a practical and complete vocational education given in a large part of the most important vocations in which men earn their daily bread.

But, persists the critic, what are you going to do in the communities which can not provide a means of education in more than two or three vocations at the most? Are you going to educate every boy as a carpenter or a blacksmith? There is a danger here to be sure, but it is more or less imaginary and at most only temporary. The school in deciding what it can teach in a vocational way with its limited means, must consider local conditions and advantages. If there is some preponderating vocation in the community which most of the youth will eventually enter, the problem is somewhat simple. The natural and effective thing to do is to teach that vocation in such a way as to make men efficient and to broaden their powers as workers in it. For the vocations in which only a few are employed, the school can not maintain distinct trade courses but it can group the fundamentals of several vocations in such a way as to give a solid foundation supplementing the practical training of the vocation received in actual practise. For example, a systematic education in blue-print reading will be of fundamental educational value to many trades.

In smaller places the workers may have to go to neighboring cities for special trades. In some cases in the more thickly settled communities two or more

communities may join together for the maintenance of vocational schools as contemplated in the laws of Massachusetts and Indiana. In all schools whether in cities, towns or rural districts there can be such an industrializing of the regular school work as will lay the foundations for vocational work and at the same time give a better industrial understanding and social sympathy.

CHAPTER III

WHEREIN THE PRESENT SYSTEM FAILS

Statistics of school attendance—Why children leave school—Neglect of life-career motive—What does education do for those who quit school early—Schools fail to train for self-preservation—Little vocational training—Rural education unsuited to needs—The weaknesses of agricultural colleges—Development of agricultural science—Science of commerce and industry still dormant—Important education obtainable only in nooks and corners—Schools train for higher grades—No stopping place—Education stops at the school door—Results of education obtainable only by a few—The raw materials to work upon.

How far are the schools meeting the needs of the people of this country in supplying education which adjusts the individual to his environment, and how nearly does our system provide that universal education required if the schools are really and truly to become the "hope of this democracy"?

The Report of the United States Commissioner of Education for 1913 states that seventy-eight per cent. of the persons between five and eighteen years of age were enrolled in schools, and that the average daily attendance in all schools was fifty-eight per cent. of the total enrolled, while the average daily attendance was for less than ninety days. But these figures in the aggregate are not so impressive as

those which indicate the time when children leave school. The best estimates available—most schools do not keep statistics on this important phase—indicate that fully ten per cent. have left the school at thirteen; forty at fourteen; seventy at fifteen, and eighty-five at sixteen years of age.¹

Statistics of their advancement are even more impressive since we have set up the standard of graduation from the elementary schools as the minimum of schooling for the youth of the land.

It may be stated according to Ayres that the general tendency of city school systems is to carry all of the children through the fifth grade. About half of the total reach the final elementary grade and about ten per cent. reach the final year in high school. These percentages vary in different cities. Typical examples of high percentages retained to the final year in high school are:

Newton, Mass.....	38 per cent.
Worcester, Mass.....	29 per cent.
Aurora, Ill.....	25 per cent.
Newark, Ohio.....	25 per cent.
Decatur, Ill.....	24 per cent.
Haverhill, Mass.....	24 per cent.
Fitchburg, Mass.....	23 per cent.
Kansas City, Mo.....	22 per cent.
Somerville, Mass.....	22 per cent.

¹ Ayres' *Laggards in Our Schools*, p. 31.

At the other extreme are, Chicago, Cincinnati, Paterson (N. J.) and Reading (Pa.), where five per cent. reach the final high-school grade; Hoboken, where four per cent. reach the final high-school grade, and Camden, Jersey City, Newark, New York, Philadelphia and Wheeling, where only three per cent. reach the final high-school grade.

The point at which pupils leave school varies, although on the average one-half have left before the completion of the elementary grades. Some cities begin to lose pupils in large numbers as early as the fourth and fifth grades. While in one city—Quincy, Massachusetts—eighty-two per cent. of all who enter go through the elementary grades.

It is evident from these figures that the ideal of universal education is not being realized by the schools. Millions of the youth of the land have left the schools with no further preparation than that given by the first four, five or six grades, and practically no facilities have been provided for any further training at public expense.

Universal education is not a reality for the country as a whole, nor for any single community, since for different parts of the country thirty to fifty per cent. do not reach the final elementary grade, and in the city having the most favorable record sixteen per cent. do not receive a complete elementary schooling, nor do they get any after-training through the public schools.

Commenting upon the record of school attendance for 1913, the commissioner of education said: "An average of ninety days in school and two hundred and seventy-five out of school gives a dangerously small amount of schooling for the future citizens of our democratic republic. . . . At this rate the total average schooling for each child to prepare it for life and for making a living, for society and the duties of citizenship, is only one thousand one hundred and seventy days."²

An analysis shows several reasons for the abnormal defection from school, chief of which are: inability to forego wage-earning; failure to respond to the formal teaching of the book; unsuitability of subject-matter to the needs and capacities of the pupil; and, lastly, the fact which is plain to all parents and pupils, that at the end of each successive grade the students are in no better position to enter upon a life career than before.

All of these reasons why children leave school center around the failure to connect the school with the life-career motive of the learner. The life-career motive is the principal impelling force keeping children in school after the compulsory period, and the schools in failing to give broad vocational training neglect the means of utilizing this motive.

What is it that inspires men and women to apply themselves to the tasks of study with earnestness?

² *Report 1913*, p. xvi.

Primarily, it is the motive of personal advancement. Show a man how he can better his economic condition by acquiring further knowledge and he will assiduously seek to acquire it if his ambition has not atrophied; show a youth how the knowledge which the school gives couples up with a life-work or even a temporary employment, and he seeks the knowledge eagerly; and show an ambitious worker how he can overcome the difficulties of his trade by evening courses or correspondence work and he applies himself to study with vigor.

It is the life-career motive that makes students of professional, normal, industrial and trade schools more diligent in their work, and the results more fruitful. Decry as we may the practical in education, we are confronted by the fact that young and old alike respond to the stimulus of applying knowledge practically, and are languid and purposeless in the pursuit of knowledge the utility of which they can not see.

But this motive so essential for effective education is quite generally neglected in the schools. Indeed, it is often discouraged. President Eliot declares that the schools fail to perform the animating and selective task of arousing and maintaining the interests of pupils, especially from twelve to sixteen years of age.

"Multitudes of American children," he says, "taking no interest in their school work, or seeing

no connection between their studies and the means of later earning a good livelihood, drop out of school far too early of their own accord, or at least offer no effective resistance to the desire of unwise parents that they stop study and go to work. Moreover, from lack of interest, they acquire while in school a listless way of working.

"Again, interest in their studies is not universal among that small proportion of American children who go into a secondary school; and in every college a perceptible proportion of the students exhibit a languid interest, or no interest, in their studies, and therefore bring little to pass during the very precious years of college life."³

What does education do for the fifty per cent. of the nation's children who leave the schools before completing the elementary courses? Has education performed its functions of adjusting these millions to the conditions in which they are placed and implanting in them the inspiration to grow in power and appreciation?

These are questions to which a militant democracy is beginning to seek an answer. Having answered these questions, it might be in order to consider the case of the forty per cent. who go through the elementary school and partly through the high school; and, lastly, the case of the ten per cent. who graduate from high school, some of whom get into college, to see how nearly the schools come to the ideal of education for them.

³ Address, National Educational Association, Boston, 1910.

It will be taken for granted that education must give as a minimum the possession of the tools of knowledge and of fundamental facts, and should establish "habits, attitudes and ideals." All after-education, general or vocational, can be built only upon such a foundation. Doubtless, the essential tools, reading, writing and arithmetic, are taught with a keener appreciation of their fundamental importance than ever before, but it would be a bold person who would assume that any considerable portion of the children in the group who leave school at fourteen, or before, are equipped with power to read interpretatively, to express clearly, or to do the ordinary every-day computations. Yet these are all essential to their freedom and their protection.

What else is given to these millions of our youth by the school? Practically nothing. Not one in a thousand derive other benefits. It gives little knowledge conducive to self-preservation or that will facilitate gaining a livelihood, leaving such knowledge to be picked up at random in after life; it gives slight knowledge of the duties of home or of parenthood, and little power or insight into the duties of citizenship. These great masses of children, unequipped for life, are cast into the industrial struggle. Lack of knowledge makes their experience blind. The way of progress is barred because they do not have the necessary tools to weld experience and knowledge into power for success. Practically

all are doomed to hard monotonous toil, without hope or outlook to relieve it.

To take up the matter more specifically, there is little teaching of value in the schools of this country relating to the first problem of man's existence, that of self-preservation. Aside from attempts at teaching physiology and hygiene, and the effects of alcohol and narcotics, which many states now require, there is no attempt to guard man through knowledge from the dangers which beset his path. Even the teaching of physiology, hygiene and the effects of alcohol and narcotics is so inefficiently done in many cases as to raise the question of the utility, if not the morality, of their teaching.

A minute search of educational institutions, collegiate as well as elementary, would disclose no important teaching intended to guard the worker through knowledge from the dangers of industrial accidents and diseases. "Safety first" campaigns for industrial safety are planned and conducted outside the school and with no particular sympathy shown by the schools. It is as though the school considered its function to be wholly unrelated to the ordinary daily life of the individual, and that all things relating to his physical welfare contaminate the holy precincts of education.

Plenty of examples may be found where food values for hogs and cattle are taught, but the diet of human beings is a matter which drags educational

ideals in the mire. Diseases of plants and animals are intelligently studied, but outside the medical colleges the diseases of human beings are scarcely alluded to. Yet, the new day demands a study of all these things relating to man's physical welfare. Conditions of living have changed. The complexities of man's dependence are such that organized instruction for self-protection is now an absolute necessity, and the school is the only public agency in a position to give it.

Education was formerly almost exclusively vocational. The few that were educated in the schools were educated for some calling. The education of the prince, when education was confined to princes, was vocational. When learning was confined largely to the clergy, men were trained for the church. The Athenian ideal of education was for the performance of the duties of citizenship, and citizens were trained. The Romans added law and trained for that vocation. The Middle Ages saw great universities of law, medicine and theology. These professions were the ends of education and remained so for many centuries, almost down to our own times. All that men needed to know about the other vocations was gained by other means than formal education. The need for education in other practical callings was not great, and the means were at hand in the apprenticeship system.

We still train men in the vocations of the church,

the law and medicine, and to these have been added many other vocations for which some preparation is given. But we find that vastly wider training is needed to meet the complexities of our progressive civilized life. The democratic ideal, too, has emphasized that every man must have equal opportunity not merely to get a particular kind of education, but to get that kind of education best suited to his need and capacity. The old scheme of education for practical arts has broken down and men are adrift in the mazes of industrial life. Where vocational education a few decades ago met the conditions by educating for the few learned professions, it must now educate for the many practical arts as well as the learned vocations. The obligation is specially emphasized by the fact that the education of to-day is principally at public expense, and there can be no proper discrimination.

The schools have not met the new conditions. They have not kept pace with the changing life. They have undoubtedly taught well the things which they have taught, but the question now before the public concerns the usefulness of teaching much that is taught. Certain it is that as far as fitting youth to meet his most urgent problem—that of earning a living—very little has been accomplished.

The Federal Commission on Vocational Education declared that not more than one person in a hundred had been trained properly for the work

they were doing. "There are more workers being trained at public expense," the report declares, "in the city of Munich, Germany, than in all the great cities of the United States representing a population of more than 12,000,000."

Agricultural colleges are found in every state, but until very recent times, and largely yet, these institutions were colleges for the preparation of scientists—not for farmers who work on the soil. No serious attempt has been made until recently to know what kind of knowledge the farmer, as a farmer, needed, and instead of giving courses suited to his needs, there grew up the scientific agricultural college with absurd academic entrance requirements and courses which barred the very people it should reach.

The development in this way had, however, one compensation. It created a body of literature relating to the scientific process of agriculture and thus gave the materials to be translated into terms understandable by the farmer. It has opened the way for the development of real vocational education in agriculture. The next step is to put the knowledge of agriculture now existing into the hands of every person who tills the soil. "It is obviously less important," said Lester F. Ward, "that a great amount of intelligence shall exist than that the data of intelligence shall be in the possession of all," and the application of the thought to agriculture is striking.

This has not been done, and after forty years of agricultural education, such as it has been, we are confronted with worse conditions than when knowledge of agriculture first began to get serious attention. Average yields of farm crops have been either practically at a dead level or are decreasing, the soil is being exhausted at an alarming rate, tenantry is increasing, the rural population is shifting to the city, and the cost of living rises at a rate far in excess of increased capacity to pay. The facts are simply that the data of agricultural science have not been put into possession of the men who till the soil.

The state colleges and schools of agriculture, the state experiment stations, the extension departments and the county agents of agriculture are doing a great work in diffusing the knowledge fundamental to a farmer's work. But the results so much needed can only be permanently achieved by educating the boy in a vocational school of agriculture within his reach, to be a farmer capable of applying knowledge to his soil, and the girl who is happy in the country to be a home-maker in the farm home.

Much has been done in many parts of the country due to the vision and initiative of individuals. The rural schools as a whole have, however, been sleeping on their opportunity. They have been following a regimen of studies utterly unfitted to their environment. The teaching of reading, writing, arithmetic,

geography, spelling, grammar, history and other elementary studies has been formal to a degree that is shocking to common sense. Instead of relating these studies to the life motives of the young, and teaching them in such a way as to connect them with life; instead of taking advantage of the opportunities which in the country are unequaled for applying knowledge to things, the schools have been allowing the children to live off the dry husks of knowledge. Teachers for these schools have been trained in the village or city high schools and have perhaps gone through formal training in normals or colleges. They have little sympathy with rural life and their knowledge of the country is limited. It is ridiculous to see a teacher of this sort, who may not know barley from beans, attempting to teach agriculture in a flower-pot in the winter time to red-blooded rural youth. Such has been the teaching in a great part of our rural schools. False standards are set up, boys and girls are made to dislike educational work, and such influence as the school exercises is in favor of the trend away from the country.

But inadequate as it has been, progress has been greater in agricultural education, including the farm home, than in the education for industry or commerce. At least the scientific data for such education have been partly discovered and formulated.

Beginnings in the discovery and formulation of the scientific data for industry and commerce have scarcely been made.

Agricultural experiment stations have supplied the raw materials to work out the pattern of education for the farm and the home. Industrial and commercial experiment stations have yet to be organized in the same large way to supply the raw material to solve the problem of education for industry and commerce.

No adequate knowledge of the processes of industry and commerce, the needs of workers or the conditions of efficiency and success are available upon which to base a sound industrial or commercial education. So far as these callings are concerned, the schools must begin at the very beginning and build up the scientific data and make its application to the needs of industry and commerce and the workers engaged in them.

Herbert Spencer, speaking of the English schools of fifty years ago, foretold the weaknesses of our own schools in this respect when he said that that which most concerns the business of life is almost entirely left out of our schools.

"All of our industries would cease," he said, "were it not for that information which men begin to acquire as they best may after their education is said to be finished, and were it not for this information which has been from age to age accumulated

and spread by unofficial means, these industries would never have existed. That increasing acquaintance with the laws of phenomena which has through successive ages enabled us to subjugate nature to our needs, and in these days gives the common laborer comforts which a few centuries ago kings could not purchase, is scarcely in any degree owed to the appointed means of instructing our youth. The vital knowledge—that by which we have grown as a nation to what we are, and which now underlies our whole existence—is a knowledge that has gotten itself taught in nooks and corners, while the ordained agencies for teaching have been mumbling dead formulas.”

One of the most pointed criticisms of the schools is that they devote their energies to preparing pupils to enter the next higher grade. The elementary school prepares for the high school, the high school prepares for the college, and the college prepares for the university. Those who fail to be promoted are ignorantly dubbed “laggards.”

One regimen of studies is set out for the children of all the people with little regard to the sympathies and capacities of each. If they can profit by the instruction offered they are advanced regularly from grade to grade and graduate amid the praises of friends, but if their particular powers do not respond to the uniform course and the formal methods of teaching, they are rapidly made to feel that their place is not in school.

The justification of this system—if it can be justified at all—must be found in the par excellence of the education which is given in the various grades, from the kindergarten to the university. Our compulsory education laws are justified only on the premise that the education offered is the best that can be devised for the children who are compelled to take it. One fact is patent to all educational observers, namely, that the colleges dominate the high schools and the high schools in turn dominate the elementary schools by holding up the bogey of entrance requirements.

The courses are, therefore, generally shaped for the few who are headed for the college, and the needs of the many are ignored. The impressive fact that ninety per cent. leave the school along the way seems to be overlooked in organizing school courses.

At no place is there any adequate terminal facilities for the youth who goes to work short of the university professional school. Even the colleges do not offer any particular connection with the life career except for an insignificant percentage.

No objection can be raised to the open way which offers the chance to attain the highest educational plane. It is a fundamental strength of our democracy that opportunity is open to the humblest to rise to noble heights through learning, but it should be no less fundamental that the rights of all to the

equal enjoyment of all that they are capable of attaining should be promoted.

The formality is such in our schools that education is looked upon as an end to be attained in the period of attendance. It nowhere seems to be looked upon as the beginning of education which should continue throughout life. School education and after-education are thought to be entirely different species. Instead of making the two harmonize, the whole emphasis is put upon "finishing" the education of our boys and girls in the schools. In consequence, the day the youth leaves school his education, except by experience, stops. How many boys and girls turn back to their books afterward? That they do not is conclusive proof that education is not a continuing process. The fortunately circumstanced go on to college, where, to a large extent, the same formal methods produce like results. Some take hold of courses offered by private or correspondence schools and get a new hold on the educational ladder, but the great mass of youth cut themselves off from all educational work forever.

Do the schools accomplish the prime purpose of adjusting the individual to his environment, and do they provide such adjustment for all the individuals in society? If further evidence were needed, it can readily be supplied by authoritative contemporary criticism.

"We are confronted everywhere in the world by this fact," said President Nicholas Murray Butler, "that while mankind is endeavoring to adapt the individual to the environment by education and training, we have thus far been successful only in providing a means of adaptation for the comparatively few select survivors of a long, arduous and expensive educational process. A boy, for instance, beginning in the elementary school can go on through the high school, the college and the university and can prepare himself for a career as an engineer, whether civil, mining, metallurgical, mechanical, chemical or electric. The same boy can, if he prefers, begin in the elementary school, go through high school, college and university and prepare himself for the practise of medicine and surgery, or for the practise of law, or for the duties of the teacher, or as an architect. The select few who can survive this process, and can meet the cost of it, are able to adapt themselves to their environment in a most admirable fashion anywhere in the world, whether in America or in Europe. They are trained to take hold of life with a firm grip at some particular point, and then the problem of success or failure rests with their own several characters and abilities. Society has done its part in offering them an organized and effective opportunity for preparation.

"But to the great mass of human beings this opportunity is not open. All over the world we have now brought these young people, by various types of compulsory legislation, under the influence of the elementary school for, let us say, the years from six or seven to thirteen or fourteen. This great mass of boys and girls get the very admirable and very effective training of the elementary school, but for

well-known economic reasons they can not take advantage of what society has to offer beyond that. They are compelled to go out and take hold of life as best they can at that tender age, unadapted, unfitted, with no specific tentacle ready to grip any particular hanging rope on which to climb to economic independence or security.”⁴

Doctor Andrew S. Draper saw clearly the defects of the schools and boldly expressed his views in these words :

“When but one-third of the children remain to the end of the elementary course, there is something the matter with the schools. When half of the men who are responsible for the business activities, and who are guiding the political life of the country, tell us that children from the elementary schools are not able to do definite things required in the world’s real affairs, there is something the matter with the schools. When work seeks workers and young men and women are indifferent to it, or do not know how to do it, there is something the matter with the schools.”⁵

And again he said :

“Our elementary schools train for no industrial employment—they lead to nothing but the secondary school, which in turn leads to the college, the university and the professional school, and so very exclusively to professional and managing occupa-

⁴ *Vocational Education*, an address before the Commercial Club of Chicago, 1913.

⁵ Draper : *American Education*, p. 275.

tions. One who goes out of the school system before the end or at the end of the elementary course is not only unprepared for any vocation which will be open to him, but too commonly he is without that intellectual training which should make him eager for opportunity and incite him to the utmost effort to do just as well as he can whatever may be open to him. He goes without respect for the manual industries where he might find work if he could do it. He is without the simple preparation necessary to do definite work in an office or a store. He is neither clear about his English nor certain about his figures.”⁸

Since the ideal of universal education for adjustment has not been attained and can be attained only through the occupations in which men engage, the first duty of the schools should be to analyze the vocations of life.

There are in this country ten million persons engaged in trades and industries who have not been properly trained for the work they are doing and who are not in a position to grow in vocational power; there are thirteen million farmers without adequate scientific and practical knowledge to succeed under modern conditions; there are seven million persons engaged in commercial pursuits, including transportation, most of whom have had scarcely any broad training for their responsibilities, and there are twenty million home-makers, a large part

⁸ Draper: *American Education*, p. 278.

of whom are incapable through lack of knowledge and training to realize the ideal of the home and to make its business side a success. Only a small number of these workers have been specially trained by the educational system. While the former means of training have been breaking down under social changes, no adequate substitutes have been as yet provided. It is to these masses of our population that the schools must first address their efforts and to the millions who each year are recruited from the schools for the ranks of trade, industry, commerce and the home.

We shall now proceed to analyze these great occupational interests to determine their demands and the needs of the workers in them.

CHAPTER IV

INDUSTRY AND ITS EDUCATIONAL NEEDS

The economic and social basis of industrial progress—Lack of skilled workers—Exploitation of our natural resources—Collapse of trade union apprenticeship—Opposition to the corporation trade school—Chaos in industry—Waste caused by industrial unrest—Cooperation is the ultimate goal—The problem of monotony in employment—Training for accident prevention—Our industrial history is ignored in the schools—The importance of a thoroughgoing survey of industry.

DEVELOPMENTS in our national life which have come about with growth of the population have transformed us suddenly from an agrarian into an industrial society, whence have arisen economic problems of vast import to the comfort of our people. Adjustments in industry have not kept pace with our need of improved processes and greater human skill. Competition has laid bare the shams of our affected excellence, the hollowness of our conceit in manufacture and industrial production.

Two chief causes may be assigned for the American effort to grasp the problem of industry and with scientific insight search out and analyze its ramifications. They are the widening conviction that industrial production has failed to generate wholesome influences for civic betterment among the men and women engaged in industry and the

complementary condition that the products of our factories and workshops are inferior and hence our opportunity for growing world trade restricted. "As the ability of a nation to hold its own against other nations depends on the skilled activity of its units," says Herbert Spencer,¹ "we see that on such knowledge may turn the national fate."

Still another explanation of the origin of vocational, or, in this particular connection, industrial education, closely related to the other two, is the wide-spread belief that the public schools in failing to train young men and women for ability to earn an abundance of good white bread, were failing to perform their most natural mission.

Time and again in this country reformers have failed to make any headway with a new program until they were able somehow to connect it with leaks in revenue or loss of profit. Once they were able to show the connection between an obsolete order and growing deficits, little effort was necessary to move the most stupid of reactionaries. Just as soon as the proponents of industrial education were able to show the manufacturer he was losing trade in world markets because of poorly-trained workmen, the manufacturer was willing to listen to what was urged in behalf of industrial education. It did not require the pronouncement of a German

¹ *What Knowledge Is of Most Worth in Education*, D. Appleton & Co., 1866, p. 47.

commission that America was not to be feared as a world competitor so long as its workmen were trained by empirical methods; the secret of German ascendancy in world markets properly was attributed to its elaborate scheme of industrial education sustained by the German state. Thus was the manufacturer arrayed on the side of industrial education in this country. Thus did the consciousness of his own shortsightedness break through the crust of prejudice and ignorance. Since the beginning of the present war the world has learned to its very great surprise how very far scientific concern for industry has emancipated Germany from any dependence economically upon the rest of the world.

The present needs of industry, viewed in their economic aspects, and from that point of view only, may be thus summarized:

I. A greater investment of labor or skill in the finished product of industry.

II. Right relationship between employers and employees, which involves a cooperative effort by employer and employee.

III. Relief of the workers from monotonous employment as far as relief is possible.

IV. Reduction of the hazard of industrial employment by several methods, chief of which is the education of employers and employees in accident prevention and to the point of view that industrial accidents are wasteful.

V. An educational system that will develop gumption, initiative, independence, patience, imagination, invention and self-reliance and eliminate awkwardness among workers.

VI. A thorough survey of our whole industrial system that will determine the social value of each industry and fix the recognition to be accorded it as a social factor.

"We are twenty-five years behind most of the nations that we recognize as competitors," says the report of the committee of the National Association of Manufacturers on Industrial Education, made in 1912.² "We must come nearer to the level of international competition. As every manufacturing establishment must have a first-class mechanical equipment and management, so also it must have in its workmen skill equal to that of competitors, domestic or foreign. The native ability, the intuitive insight, courage and resourcefulness of American workmen is quite unsurpassed. They are the brothers of the 'men behind the guns.' It is their misfortune that they have not been given by their country that measure of technical instruction that is their due, and are by no means equal in technical skill to the workers of continental Europe. . . .

"Providence has been kind to us, but Providence is likely now to leave us a little more to our own intelligence. We must henceforth sell more brains and less raw material. We must, to the utmost

² Report of Committee on Industrial Education, at Seventeenth Annual Convention, New York City, May 21, 1912; H. E. Miles, Chairman of the Committee.

degree, develop our human efficiencies. In them is a natural resource, and the only one that increases with use and will increase forever and immeasurably. Other nations, lacking our raw materials, make the cultivation of their human resources the substantial basis of their prosperity and happiness."

So long as our natural resources appeared inexhaustible—and they did so appear until comparatively recent years—our industrial development, such as it was, quite reasonably centered about the exploitation of these resources. Moreover, railroad building on a gigantic scale facilitated the exploitation of bulky crude products of the earth. Americans might make handsome profits from the sale of crude pig iron, which Germany bought of us and to which Germany added the patient experimentation of its chemists and the skill of its artisans. So long as crude iron ore appeared inexhaustible we were willing to accept our profits from mining, and perhaps the simple processes of reduction, and to pay back to Germany fifty or one hundred times the value of the original raw product, which represented Germany's investment of intelligence and skill in the finished product.

Recently we have been taking an inventory of our natural resources. We have found a stock we had believed inexhaustible to be sadly depleted. It is not, therefore, surprising that we have agreed upon a policy of conservation—a strange word with

new meaning each season. We have determined to pursue the policy of our most successful competitor, and we likewise are generally agreed that the same end must be attained by the same means; that is, by industrial education.

Perhaps our industrial atmosphere has been obscured by a few epochal inventions—the steamboat, electric telegraph and telephone, the reaper and the sewing-machine. Perhaps our self-complacency, our national conceit, was founded upon the admitted transformation wrought by these inventions. Yet these inventions were no more useful to us in the exploitation of our resources than to Germany and England in getting our raw products cheaply for manufacture into finished articles. We are still accredited with the manufacture of superior agricultural implements and superior sewing-machines, but here the story ends.

The fact still remains that the value added in the manufacture of raw products in this country is only two-thirds of the value of raw products used; that is, for every three dollars' value of raw products we add two dollars' value by manufacture. By intelligence and skill Germany adds to the value of the raw product another value which is two and two-thirds times the original value. In other words, for every three dollars of original value in raw products Germany adds eight additional dollars' value in the process of manufacture,

Our mistaken notion that our raw products were inexhaustible, and the further fact that a satisfactory profit could be obtained from the production of raw material, are partially responsible for the present chaotic state of industry. Another fact is also painfully apparent. We have not possessed the skilled labor with which to perform the finer processes of industrial art.

Not only do we suffer great loss from incomplete production, due to want of skill, but our processes are inefficient and wasteful. Until quite recently we paid little or no attention to the human methods in industry and there was little experimentation for correct standards. Men were assigned to this machine or that machine, this process or that process, and left to toil without any well-determined notion of how the volume of their output would balance with the output of other men operating other machines or engaged in other processes. Accurate data for fair standards were not available. There was little information at hand to indicate whether individual workmen were efficient; whether they were performing their tasks by the shortest cuts possible.

Germany has won many trade battles in her industrial laboratories. Everything possible is done to eliminate waste in manufacturing processes. An institute for coal-mining research, designed to work out processes for saving all the by-products, such as ammonia and coal tar, and thereby reducing the

cost of fuel, has just been opened in that country. It is only one of the many similar institutes for scientific research which give expert advice to every department of industry.

Training for industry, if it realizes the purposes of its proponents, will make of every worker, grounded in the science of industrial production, an experimenter for improved methods and new ways. It offers an opportunity to widen the sources of industrial research by making every man a research student instead of a devitalized and de-energized automaton. It will democratize the industrial laboratory and open the door, heretofore to be entered by a mere handful of men, to the many. The National Cash Register is the product not of a single genius, but of hundreds of men employed in the factory, who have for the promise of substantial reward devoted themselves to the improvement of each and every part. Industrial education will universalize the methods by which one company has produced a cash register that has no equal on the market.

Until recent years the trade union system of apprenticeship was our sole source of skilled mechanics. But apprenticeship had its origin and served its purpose in an industrial order altogether different from that now prevailing. Apprenticeship does not meet the present needs of industry. As a scheme of education it is altogether inadequate. Conditions of

society have changed greatly. Formerly, the master was responsible for the conduct of the apprentice, who lived with him, ate at his table and perhaps subsequently married his daughter. The master felt a personal responsibility for the character of the apprentice's training, the perfection of his skill.

But the master no longer works with his men and exercises no personal supervision over his apprentice, who is merely a hired boy and who must depend for his training upon what he may gain by observation. No one is present to direct the inquiring energies of his youthful mind. The boss or foreman is likely to be interested solely in volume of production and does not have time to look after the training of the young man seeking to learn a trade. Moreover, the system of apprenticeship has operated to reduce the available supply of skilled workmen of whatever degree, since entrance into a trade is almost as difficult as opportunities are meager. But trade union leaders were prone to defend the apprenticeship system as long as no satisfactory substitute was offered.

Many large corporations maintain private trade schools where young men are received for study and training for a trade or for some department of the company's business. Their work has not been altogether satisfactory, but they have done something to bridge the gap between inefficiency and skill. Their failure consists fundamentally in the

limitations of the scheme. Corporation trade schools educate only for the specific concerns which maintain them and not for industrial processes generally. Young men trained in the narrow ways of a particular organization are apt to become wholly dependent upon that organization and to believe in the permanence and infallibility of its processes. Corporation trade schools can hardly develop the maximum of imagination and initiative—the two very important attributes of efficiency in industry.

Naturally, the trade unions opposed the corporation trade school. A special committee of the American Federation of Labor,³ which made a report on industrial education at the Toronto meeting in 1909, opposed corporation trade schools on the grounds that, since their selection of pupils is private and not public, they are undemocratic and un-American; that they offer an opportunity to teach and foster anti-unionism with school-apprenticed boys; that they are wholly removed from the salutary supervision of the whole people and leave unsolved “the fundamental democratic problem of giving the boys of the country an equal opportunity and the citizens the power to criticize and reform their educational machinery”; that they merely pretend to teach trades “in periods ranging from four

³ *Proceedings of Twenty-ninth Annual Convention, A. F. L.*, p. 101.

months to four years, and turn out graduates in times of industrial peace who are able to earn only fifty per cent. of the established wage in a given trade, and in times of industrial dispute are exploited in the interests of unfair employers."

But this committee also admitted the shortcomings of the apprentice system. "Formerly, the apprenticeship system offered the boy an opportunity to learn a trade and become a thoroughly trained mechanic," it found, "but of late years the scheme of specialization has supplanted the old apprenticeship system, even to extreme specialization. . . . The one trouble in America to-day is that too many of our youths who have graduated from the grammar or high school are misfits industrially. If we are to secure industrial supremacy, or even maintain our present standards in the industrial world, we must in some way in our educational system acquire an equivalent to the old apprenticeship system."

Thus the influence of trade unionism in the United States was marshaled on the side of industrial education, if provided for by public agency. This victory was attained, not without serious obstacles, by a few far-seeing men who possessed the confidence of organized labor. The latter element took the position that education for industry must be thorough, and to be thorough must be undertaken at public expense. It must be made a part of the public school system. On this basis alone was

organized labor willing to indorse industrial education as supplemental to the apprenticeship system.

There are, in this country, several types of trade schools—those supported by public funds, those supported by private foundations and those supported in various other ways. The International Typographical Union established a school of printing in 1908. A number of technical schools are maintained by public funds and an even larger number by private endowment. Boston and Lowell have maintained evening industrial and trade schools for many years. Many such schools are maintained privately. Some practical shop courses are publicly maintained and others are privately endowed. There are trade schools for the colored race and numerous private correspondence schools offering instruction at long range for industry. One correspondence school claims that during a single year five thousand of its students received wage increases, averaging four hundred dollars for each student, due to training received by correspondence. Finally, there are numerous intermediate industrial, preparatory trade or vocational schools, among which are those at New Bedford, Lawrence and Newton, Massachusetts, conducted in accordance with a Massachusetts statute of 1906, and several in New York, conducted under a New York act of 1908. Many other states have made substantial progress toward establishing and maintaining industrial schools.

Some means must be devised by which, for the wide-spread unrest now prevailing in industry, a spirit of cooperation and mutuality will be substituted. Industrial managers are agreed that this unrest is wasteful; that, whatever its causes, unrest operates to reduce efficiency, not only in the producing department, but in the departments of sales and distribution. Furthermore, industrial unrest tends to restrict the consumption of all classes.

There is a fundamental cause of industrial unrest which may be defined as the uneven division between capital and labor, employer and employee, of the products or fruits of industry. This fundamental difference is expressed in divers ways, chief of which are the desire of the workers for a voice in determining the conditions under which they are to work, revolt against arbitrary dealings with individual working men and the spread of industrial and trade unionism as a sequel to disastrous and wasting strikes.

Infamous conditions patent to certain industries must be removed. These conditions not only are drawing the fire of the social crusader but they are wasting the energies of the industrial manager. They evidence a very serious breach of harmony between industry and the workers and call for an immediate readjustment. It should be unnecessary for social workers to strive against child labor, unsanitary factories, occupational diseases, long hours

of service, the toll of human flesh taken by industrial accidents, irregular employment and wages which fall below a living minimum. Fundamentally, these conditions are social evils but they have a profound economic significance to industry and they ought to be eradicated. Industry largely must set its own house aright. "Herein must the patient minister unto himself." No one manufacturer can accomplish the revolution but all, working together, can do so and they should act with earnestness, even despatch.

It may be said that these conditions are irremediable; that no satisfactory panacea has been or will be devised. This contention is untrue. Of all the ills to which industry is heir, that of irregular unemployment undoubtedly is least susceptible to a thoroughgoing remedy. Yet unemployment is not at all hopeless. When men and women are more satisfactorily trained for industry, when industrial surveys have set forth the facts regarding the opportunity for steady employment in each trade, there will no longer be the same blind choice—seasonal or intermittent trades and unemployment will be avoided by men who must consider the permanency of employment.

It is characteristic of our industrial order that we have over-emphasized the difference in importance of various works. Although we have very much to say about the "dignity of honest labor,"

we do not accord to manual labor the social value to which it is entitled. That is because we are still thinking in terms of an individualistic philosophy and because we still act from that motif. Actually, we do not consider the value of manual labor as comparable with the mental efforts of the theologian, the lawyer or the merchant. We harp much about the want of efficiency of the man who keeps our streets clean and consider with hypocritical seriousness whether we are getting a full day's work for a dollar and a half, yet we concede to the corporation attorney, who is paid to inform his client of all the sharp practises by which the state may be frustrated in its endeavor to enforce useful laws, the right to have for his services fifty or perhaps one hundred thousand dollars a year. And this corporation attorney who receives his fee for knowing how to evade our laws and for so instructing his client is the same man to whom perhaps the state has *given* a professional education—a vocational education—in our state universities, at great expense to all the people.

We can not escape the consequences of our idealism or lack of it. As long as the dollar is the determining standard of successful careers, the toiler who labors for meager wages will remain at the foot of the social ladder. He can not rise above it. Perhaps there is no panacea for this condition. Perhaps industry is not to be held accountable for the

cataclysmic peril of individualism run riot, but industrial education will free the workers from the enticements of "blind alley" jobs, facilitate the realization of an economic democracy and in the end raze the bulwarks of class exploitation, an ideal from which industry certainly is not to emerge a loser.

Cooperation between employer and employee, as the ultimate goal of industry, can not be attained by temporizing devices conceived by ultra-enthusiastic philanthropists or fomented by irresponsible agitators. Cooperation is a scientific fact and its approach likewise is scientific. It must be realized by and through the efforts of the student. Industrial education, therefore, must include the problems of cooperation as one of its chief concerns.

Industry needs to find some form of relief from the exactions of monotonous employment. There are in this country upward of twenty million people over ten years of age—men, women and children—engaged in unskilled or partially-skilled occupations. The number doing this unskilled or highly specialized work remains fairly constant, and increases in about the same ratio as the increase in population. The service is menial, monotonous, automatic. Little training is required for such work and not more than a few months' experience. The school seems totally unable to contribute anything to the betterment of such workers as long as they remain

in these unskilled or partially-skilled occupations. Tacitly, we recognize in this country the necessity for the industrial worker to proceed out of hand toil, by promotion, to positions as foremen, manager, director and owner, if he is to enjoy the greater social luxuries. He can obtain few luxuries as long as he remains an industrial worker because custom has fixed a limit to what he may receive. We are beset, therefore, with the alternative either of considering monotonous employment in specialized industries or the hand trades as the beginning of a man's promotion to a managing position where he may earn enough to support himself and family in comfort and save against old age and diminished earning capacity, or, of admitting that this class of labor is underpaid.

If the man who yesterday performed the automatic tasks of industry to-day has been raised to the position of foreman or superintendent or sales manager, some one takes his place. That one man has been promoted does not reduce the number of men required for the commoner kind of labor, which the promoted man performed a little while ago.

Only one out of ten boys entering the textile mill, it is said, can expect to rise out of the wearisome niche of automatic effort into more highly skilled work and, as for girls, the percentage is much smaller. Only one in two hundred girls employed in the simple automatic processes of the textile mill

may expect a permanent and lucrative position, offering constant opportunity for individual effort at greater efficiency and promotion, higher wages and better working conditions.

Of course, boys and girls must be educated away from these "blind alley" occupations. Girls are employed on an average of seven years in these trades, after which they marry or leave for other causes. But boys must continue to be wage-earners all their lives, and the pressure of their permanent welfare makes the problem more acute. Charles A. Prosser suggests the machine shops, repair shops, electrical shops, wheelwrighting and power shops which cluster about the textile center as desirable openings for boys fitted for advancement and as well situated for their part-time training while they are working actively in the textile industry.

Mining practically is devoid of opportunities for promotion. It offers little inspiration for more than average effort and scarcely any chance for individual skill. Yet there are many hand trades necessary to mining operations and open to young men working in a mine through which they may find, if they choose, a "place in the sun."

Girls who perform monotonous tasks may take up household science as a wholesome diversion and in it may find many opportunities to increase their earnings or prepare for the business of home-making, which eventually is their chief interest.

Large-scale production, with its finely-spun division of labor, depending upon specialized machines run at high speed, where increased profits are closely related to greater mental and physical fatigue of the workers, is a problem which industry must attack for its own sake. Monotonous employment tends to restrict the activity of motor centers to a few grooves and in that much, during leisure hours, calls for a variety of experiences that may become more and more physically and morally harmful. Shorter hours will tend to relieve the strain, but some means ought to be provided by which the worker will find a wholesome avenue of expression in his leisure hours.

Industry should take the initiative and, in a large measure, direct the course which public agencies are to take in providing healthful and diverting systems of recreation for men and women, boys and girls, engaged in monotonous employments. Here is an opportunity for trained social workers, but every agency, public and private, must cooperate to relieve the tension of toil where "efficiency" concerns itself merely with speeding up the physical efforts of the worker.

Perhaps industrial education will fail to contribute materially to the relief of the workers from automatic industry. Perhaps automatic industry is not susceptible to thoroughgoing relief. Yet the problem is certain to be attacked as a consequence

of the somewhat universal interest in industrial education, and may we not expect that a scientific consideration of its troublesome features will yield a satisfactory return for the effort?

An almost crucial need of industry is the training for accident prevention. Employers should be made to see that accidents are wasteful; that they affect the credit side of the ledger; that loss of life, permanent or even temporary illness or injury of employees cost dollars, not only in the pay-roll, but in the net outlay for production.

Frederick L. Hoffman⁴ estimated the number of fatal accidents in industry in 1906 at 32,004, while Doctor Josiah Strong, in his *Safety and Security of American Life and Labor*,⁵ asserts that "our peaceful vocations cost more lives every two days than all we lost in battle during our war with Spain."

Doctor Tolman gives even more startling figures in his volume, *Safety*, issued in 1913. "It is the general opinion of the engineering profession," he says,⁶ "that one-half of the accidents in the United States are preventable and that a conservative estimate of the annual number of accidents which result fatally or in partial or total incapacity on the part of the worker may be placed at 500,000. Reckoning the earning capacity of the average worker at

⁴ Bliss, *Encyclopedia of Social Reform*, p. 4.

⁵ Quoted in Bliss, *Encyclopedia of Social Reform*, p. 6.

⁶ *Ibid.*, p. 2.

\$500 per annum, we have to consider a social and economic loss of \$250,000,000 a year. And these figures, of course, take no account of the many high-salaried men and industrialists killed every year in mining, building, transportation and other fields of industry.

"Every year," he continues,⁷ "we spend enormous sums 'conserving the national resources.' We are taking care of our trees, we are taking care of our game, we are taking care of our fish, but also every year we lose many times over what we conserve in this way simply because an army of wage-earners are allowed to become a charge on charity for no other reason than that we do not seem to consider it worth while to take care of the very foundation of the nation—the workingman and his family. . . . In this last and most vital question of all—the wasted lives of our people—we have been making ourselves ridiculous in the eyes of world powers."

As a contrast with the reckless extravagance that prevails in this country, Tolman cites⁸ the statement of Doctor Zacher, director of the German Imperial Bureau of Statistics:

"One billion marks in wage-earning efficiency annually we conserve for Germany through our sanatoria, museums of safety, convalescent homes and other forms of social insurance, by which we safe-

⁷ Bliss, *Encyclopedia of Social Reform*, p. 4.

⁸ *Ibid.*, p. 4.

guard the lives and limbs of our workmen and prevent the causes and effects of diseases which would lessen their economic efficiency."

"One of the most important phases of our future development," says Doctor Tolman,⁹ "is the work of creating an inexpensive efficient handrail at the top of our industrial precipice to take the place of the unreliable and expensive ambulance at the bottom."

It is not sufficient either to install every available device for the safety of industry or to say simply that workmen must be careful. It will hardly suffice to do both. Workmen need to be trained over an extended period to be cautious. Industrial education offers an adequate means of developing those reflex centers which, after all, are the surest personal safeguards and guarantees against industrial peril, while the mind is plastic.

Surely there can be no question that accident prevention should be undertaken with systematic precision when the United States Steel Corporation in seven years has been able to reduce industrial accidents forty-six per cent. and save nine thousand employees from serious injury or death as a result of its "safety first" movement and when many large concerns have been able to reduce accidents from thirty to eighty-five per cent. without any loss of

⁹ *Ibid.*, p. 8.

production. Industrial education should emphasize the economy of industrial safety.

Industry, it has been said, is in need of an educational system that will develop imagination, initiative, independence and self-reliance among the men who are to pursue its ramifications. As now constituted, our educational system is wholly unequal to the program fixed for it. It is quite lacking in impetus for individual expression. It contributes little to promote our industrial growth because it does not concern itself specifically with industrial problems.

Industrial education aims to grasp the intricate and inexplicable phases of secondary production and to give to each, in turn, the careful attention of an army of trained workers. Production, it insists, must be complete and final. Skill of the highest order should attach to every commodity offered for sale. Production seeks the minimum cost, and this necessitates, first, that employer and employee be on friendly terms, and, second, that there be no sweating and no unnecessary monotony in industrial operation.

Our present system neglects almost altogether the teaching of those things which have an economic object. Industry is no exception. Even our industrial history, which might well be taught under the present scheme of education, is slighted or wholly omitted. The information of the average boy out

of high school concerning our industrial development is confined almost altogether to vague recollections of who invented the steamboat, the cotton-gin, the electric telephone and telegraph. There it ends. He knows almost nothing about the history of machine production, of the labor movement, about science as applied to industrial development, about trade and transportation, selling and marketing.

Lawyers, soldiers, politicians and authors occupy the center of the stage in the schoolroom panorama of American history. Boys and girls naturally seek to imitate the figures constantly held before their immature minds. Yet what does it profit the young man or young woman who must be self-supporting at sixteen or eighteen years of age to emulate such as these? Would it not be far better for the young man who must go to work very early in life that the industrial genius of Robert Owen, James Parton, Cyrus McCormick or Edison were emphasized somewhat to the exclusion of political and military heroes? Would it not be far better for industry if such were the case?

"Both the educational methods and the economic demand have been crystallized," says Howell Cheney,¹⁰ "and a solution of the problem satisfactory to all parties depends upon keeping a proper balance between a broad training for life and imme-

¹⁰ *The School and the Shop from an Employer's Point of View*, p. 4, by Howell Cheney of Cheney Brothers, South Manchester, Conn.

ciate efficiency, *i. e.*, between the social and educational necessities and the cultivation of a mere dexterity which will produce the greatest number of an article at a minimum price."

But American employers, before they should receive the aid of public education for the thorough training of young men and women for industry must, as Howell Cheney¹¹ says, "demonstrate, first, the existence of educational opportunities in our factories and the reality of their influence, and then to indicate how they may be directed toward the promotion of higher intelligence, as their important aim. Their economic value is of secondary importance and ought to be considered only in so far as it contributed toward the main purpose."

Cheney contends that, after eliminating industries which require a high grade of skill developed through hard work and which are plainly educational, there are many others which offer proper opportunities for industrial training for boys as a legitimate part of their education. Among these he names the metal and machine trades, from making watches to building locomotives; the building trades and allied vocations; the craft of the bookbinder, printer, decorator, designer, engraver or draftsman; the higher processes of shoe and textile manufacturing; electrical working, agriculture, dairy farming, stock raising and the commercial pursuits. And for

¹¹ Howell Cheney, *The School and The Shop*.

girls, Cheney names typewriting and stenography, millinery and dressmaking, decorating, designing and printing and certain machine operations.

But these occupations are only typical. Every one needs to be subjected to rigid examination and investigation before it is dignified by such education and training as the public schools may offer. The schools must institute and carry forward to completion the proposed survey of industry. So far little has been done. "Our schools," says President Eggleston, of the Virginia Polytechnic Institute, "are the only manufacturing plants in the world that make practically no survey of their communities before the erection of plants."

Nearly ten thousand occupations are listed in the United States census reports, and the vast work necessary for an adequate survey of industry is apparent. Many occupations which are not now acceptable, as offering a wholesome minimum of educational opportunity, are nevertheless susceptible to changes which will make them acceptable. Before any occupation is made a part of the industrial educational curriculum, it must be lifted to a plane where mental development is assured as the normal result of pursuing its processes. There must be no "blind alleys" into which young men and women are to be lured by the peculiar enticements that attach to a vocation because training for it may be had in public schools.

As expressed by Charles H. Winslow,¹² an industrial survey should determine four things: First, the exact nature of the employment in detail, including the character of work performed; second, the extent to which training for the occupation is given in the shop, that school instruction may supplement and not duplicate practical apprenticeship; third, a statement of the common deficiencies and needs of the worker, and, fourth, the nature of instruction expected of the public schools.

Roughly speaking, the determination of these things would constitute a fairly satisfactory survey of industry. In the industrial survey of Richmond detailed schedules of fifty inquiries were prepared, one for the industrial managers and one for the workmen. In the printing, building and metal trades, for instance, more than five hundred individual schedules were taken, each representing a personal conference with workmen. One hundred and fifty individual schedules were taken among the workmen in the tobacco industry and three or four hundred in the department stores. Analyses for each of fifty-six occupations in the printing, building and metal trades were prepared.

Necessarily, a survey must be a permanent institution in order to carry investigations into industries not covered by the initial survey; to collect and

¹² Address on Richmond Survey.

compile data regarding new processes and new occupations in industries already covered; to collect data concerning the development of new industries in a community, and to maintain intimate relationship between shop and school. For the success of industrial education the last is most important. Not only should the relationship between shop and school be permanent, but it likewise should be of the most intimate and friendly sort. For this purpose, experts, teachers and industrial managers should be joined together permanently to effect and maintain the cooperation and coordination of shop and school. The coordination should be characterized by daily contact between shop and school through some professional intermediary agent that is able to measure and report progress. No other means can get equally efficient results, and if, as Mr. Winslow says, "industrial education should not be content to follow, it should direct industrial development;" no less direct means of coordination will insure the fulfillment of the aims of industrial education.

Industry demands the cooperation of the manufacturer, the workmen and the teacher to determine the boundaries of industrial education and guide its course aright. Training for industry is going to yield readily to a measuring stick, and that measuring stick is shop efficiency. But if industrial education arouses the thought centers and creates

new grooves and paths in the brains of working men, efficiency in shop and factory, under the proper guidance of skilled managers and executives, will take care of itself. Industry will thus enter a new era of reformation and expansion.

CHAPTER V

AGRICULTURE AND ITS EDUCATIONAL NEEDS

Food production has failed to keep pace with the increase in population—Our farm yields are far below those of European countries—Farm is unattractive as a business opportunity—Distribution facilities are inadequate—Greater production in the aggregate means lower prices—Cooperative marketing is a scientific undertaking and a problem for trained minds—Why rural education is uninteresting—Agricultural colleges and practical farming—Keeping the boy on the farm—The problems of tenantry, transient laborers and mature workers—Agricultural credit—Farm accounting—Diversified farming—Expenditures for roads—Conservation in agriculture—Vision and inspiration count—Careful training essential.

THE farm is the granary for the office, the store and the shop. It is the farm which must feed and clothe that section of the population which produces no food and no raw material for clothing. Prices of food and clothing have experienced an upward trend for several years and are becoming next to prohibitive for great sections of the population. The conclusion is obvious that production must be increased if the non-producers of food are to be fed. It is very generally agreed that there is not enough food to "go around"; that a shortage of supply has enhanced prices for all classes.

It is not difficult to understand why the volume of farm production has become a serious social

problem in the United States. The urban population has been gaining on the rural population for thirty years. The active producers have been leaving the farm for the city. While the urban population increased from 29.5 per cent. of the whole in 1880 to 46.3 per cent. in 1910, the rural population decreased from 70.5 to 53.7. The effect of this shifting of population upon production is more clearly evidenced from the decrease in rural population in the great agricultural states of the Middle West between 1880 and 1910. The table herewith presented shows the percentage of rural population for two periods in twelve states:

TABLE SHOWING THE RURAL POPULATION BY PERCENTAGES FOR
TWELVE STATES AT TWO PERIODS

State	1880	1910	State	1880	1910
Indiana	80.5	57.6	Iowa	84.8	69.4
Ohio	67.8	44.1	Missouri	74.8	57.5
Illinois	69.0	38.3	North Dakota...	92.7	89.0
Michigan	75.2	52.8	South Dakota...	92.7	86.9
Wisconsin	76.1	57.0	Nebraska	86.6	73.9
Minnesota	81.1	59.0	Kansas	89.5	70.8

The decrease in the number of persons engaged in agriculture—the number of food-producers—is striking. Since 1880 there has been a steady decline from 44.4 per cent. to 32.9 in 1910. The percentage of professional people has shown a slight gain and the percentage of persons in domestic and personal service a considerable falling off—5.2 per cent.—in the last decade. On the contrary, the percentage of

persons engaged in mechanical and manufacturing pursuits, who are non-producers of the raw material for food, increased from 21.8 in 1880 to 28.3 in 1910.

More striking still is the deduction from these figures that, whereas in 1880 there was 44.4 per cent. of the population to feed a remainder of 55.6, in 1910 there was only 32.9 per cent. of the working population to feed a remainder of 67.1 per cent.

Our production per acre is still far behind that of the great European agricultural countries where the pressure of population has become serious. We produced 14.1 bushels of wheat per acre in the ten-year period, 1900-09, while Germany produced 28.9 bushels, France 20.5 and the United Kingdom 33. We produced 29.3 bushels of oats, while Germany raised 50.7 and the United Kingdom 44.3; 92 bushels of potatoes, while Germany produced 200, Austria 151.1, France 133.8 and the United Kingdom 193.8.¹

¹ The following table shows the ten-year yield of leading crops in seven countries:

Country	Wheat 60 lbs.	Oats 32 lbs.	Barley 48 lbs.	Rye 56 lbs.	Potatoes 60 lbs.
United States	14.1	29.3	25.8	16.0	92.0
European Russia	9.7	20.0	14.3	11.5	99.0
Germany	28.9	50.7	35.3	25.6	200.0
Austria	18.0	29.8	26.3	19.0	151.1
Hungary	17.5	30.7	23.4	17.6	118.7
France	20.5 <i>b</i>	31.6 <i>b</i>	23.6 <i>b</i>	17.1 <i>b</i>	113.8 <i>b</i>
United Kingdom	33.1 <i>b</i>	44.3 <i>b</i>	35.0 <i>b</i>	27.5 <i>b</i>	193.8 <i>b</i>

b—Winchester bushels.

By improving the seed and by proper methods of farming, the yield of wheat and corn could be doubled in this country and the yield of oats and barley increased to fifty bushels. Agriculture, during the last three decades, has very little for which to congratulate itself if crop yields only are considered.

That the farm has not been attractive as a business opportunity, accounts partially for the movement from country to city. The movement is world-wide. In 1897, says Mulhall, when forty per cent. of the world's population was engaged in agriculture and thirty-one per cent. of the world's capital was employed in this industry, its share of the world's profits was only twenty per cent. The significance of this disparity is more marked in the United States from the fact that land values in this country and cost of farm equipment have increased enormously in the last decade.

The value of farm property in the United States doubled between 1900 and 1910, and more than three-fourths of the increased value was for land. While the man who owned a farm in 1910 could sell it practically for twice what he would have received in 1900, if he chose to keep the farm the increased value was reflected only in such advances as attached to prices of farm products. It is growing increasingly difficult for the young man starting out in life

with no money to obtain a farm of his own because of the increased initial cost of the land.

Farmers can hardly be expected to wax enthusiastic over increased production if this means merely that they shall receive a proportionately smaller unit price for a greater number of bushels; or, a like number of coins for a greater number of pounds. After all, the farmer's economic interest is centered in increased profits, whether production recedes, remains constant or is enhanced. If only the economic interest of the so-called non-producers—the consumers of food and clothing—were to be considered, it could be said truly that greater production would solve the whole problem of the high cost of living. Increased production would amount to a greater supply, and under normal conditions, at least, this factor would tend to reduce prices to a proper level.

Unfortunately, the farmer's economic interest in increased profits can not be ignored. Involved in this interest, patent to the farmer's prosperity, is the problem of distribution, which, fortunately, is not altogether hopeless. The problem of distribution is no other than that of markets. So that, if production is increased, improved market facilities to safeguard the farmer's economic interest in greater profits must eliminate to some extent the present waste in distribution. Present and future efforts to

avoid this waste must compensate the farmer for producing larger crops, which, otherwise, would mean nothing to him.

The two most important economic problems of agriculture, from the point of view of those engaged in the industry, therefore, are greater production and improved market facilities.

Improved market facilities must go hand in hand with increased production if the economic problems of the farm are to be solved. The country is quite familiar with "corners" and monopolies of food products; familiar with the waste from our indirect system of dealing between producer and consumer, and from total loss of most of the surplus raised on the average farm, because no scheme is available to expedite barter and sale directly between producer in the country and consumer in the city; familiar with the loss from glutted markets, where the producer must take what the commission man is willing to pay.

The packers have control of the meat supply, gamblers in futures get control of the available supply of wheat, brokers and cold-storage men combine to limit the free trading in fruits, eggs and dairy products, while prices soar beyond all reason. Vegetables in large quantities go to waste on the farm because there is no means by which the individual farmer can dispose of his small surplus. The farmer has come to be a disinterested spectator in make-

believe rate wars between shipper and carrier. The whole system of marketing is inefficient, extravagant and ruinous. The farmer suffers most of all from the havoc wrought by this inefficiency and waste.

"Year after year," says John Graham Brooks,² "southern California tried to market her fruits as if the process were an all-around free fight. From the grower to the eater there was no interest which did not suffer. The separate grower found himself with less and less influence over the railroad, over prices and over far-off commission men."

But the fruit growers found a remedy for this condition in cooperative organization, and the power formerly used by the middleman has been appropriated directly by the growers. "What organization has done for large business," says Brooks, "it here does for the smaller. Grading, packing, inspection, marketing are all taken into their own group control. . . . In the central exchange and the forty independent co-operative associations above eighty per cent. of the citrus fruit is thus handled. Three out of four of California's twelve thousand growers are in co-operative teamwork."

Apple growing is a cooperative enterprise in the Northwest. Cooperation has effected a revolution

² *The New Republic*.

in dairying. There are more than fifteen hundred mutual insurance companies, insuring farmers against losses from fire, hail and cyclones, and all but a fraction of one per cent. of these companies have been successful. Five of the thirteen million acres of irrigated land, it is said, have been irrigated by cooperative effort. There are several thousand farmers' elevators in the country that not only market the members' grain, but purchase cooperatively flour, coal, lumber, machinery and general merchandise.

The cooperative movement has spread rapidly in the last few years and presents an effective means of checking the oppression of railroads, middlemen and other monopolists.

Agricultural education is proposed as a system of training by which farm production may be increased. It is expected to reveal its magic in making land that costs twice as much as formerly produce at least twice as much. To this extent it is expected to make the farm attractive as a business opportunity and check the exodus from country to city, which, incidentally, has more than economic importance. Moreover, if agricultural education accomplishes a reasonable measure of its program, it will develop a happy and contented country life, one which for intelligence and vision will surpass even the competitive spirit of life in the great industrial and commercial metropolis. In any event, country

life will avoid the most glaring vices of the city. By emphasizing the comparative advantages of life in the open, socially and financially, agricultural education should establish a countryside that is attractive to those active-minded young men now hastening, at the outset of their careers, to the office in the city. Since the farmer's markets are intimately dependent upon cooperative endeavor, agricultural education is expected to emphasize the importance of cooperation in buying and selling. Young men must be trained in the scientific phases of cooperative endeavor, and agricultural education can and should give this training. Cooperation among producers is quite as necessary to the consumers as to primary producers.

Were it not well settled that something is wrong with rural education, we should have nothing new to-day with which to deal. But the twin problems of an imminent shortage of food supply and decreasing profits from the business of farming have precipitated what, it seems certain, will amount to a revolution in rural education. Of course, there has been a wide-spread conviction that the rural schools somehow have not fulfilled the needs of the boys and girls who come to them. Discerning parents have been unable to establish any close relationship between what their sons and daughters learned at school and what they ought to know to be successful farmers and farmers' wives.

Professional educators have sought to correlate teaching with real life as a counter-irritant to this wide-spread feeling. It was admitted that pedagogical instruction lacked concreteness, failed to hold the child's interest, and teachers therefore were urged to use the concrete material available in the school community. Not until recently was the relationship between the failure of public school instruction and the development of the vocational instincts in children—a development which vocational education in its many phases is to satisfy—recognized.

Rural education is not adapted to the immediate and intimate interests of the children. Agricultural education should make it so.

For more than a half century the agricultural colleges and, for a lesser period, the United States Department of Agriculture have labored with the declared purpose of awakening a scientific interest in the business of farming. The agricultural college and the extension work of the United States Department of Agriculture have pointed the way to better methods and to a scientific point of attack. This cooperative endeavor may be regarded as the forerunner of what we know to-day as the nation-wide scheme of agricultural education—a scheme that will thoroughly localize instruction.

Agricultural education purposes to transform the rural schools so that they will accomplish the ends which their surroundings invite them to seek. Agri-

cultural colleges have made no little progress in demonstrating that intellectual vision and mental activity are quite as necessary to successful farming as physical energy, but the impetus for the present movement did not come from the land-grant institutions.

The agricultural college has failed largely to educate practical farmers. Instead of educating young men *for* the farm, the agricultural college, as well as the public schools, actually has educated the young man *away from* the farm. Senator Page has made the statement that the agricultural college of Vermont in thirty years furnished just eight practical farmers. In twenty years the Montana Agricultural College furnished two. These examples are hardly typical, but the tendency of the agricultural college has been to make its students agricultural scientists rather than practical and successful farmers.

More boys should remain on the farm and their education for the farm, therefore, should be obtained largely in the home community if there is to be any material profit from agricultural education, if education is to make the farm attractive. It is wrong altogether to send the boy away to the city for an agricultural education at a time when his mind is most susceptible to the influences which surround him. The new movement for agricultural education purposes to establish the agricultural school at the very threshold of the farm, where it

will be available to the country boy without leaving the farm at all. If the nation-wide scheme of agricultural education given in the public schools of each township will not succeed in keeping the boy on the farm, then nothing will succeed.

The per cent. of tenancy in the United States increased from 25.5 in 1880 to 37 in 1910; also, the number of tenant farmers increased 130 per cent. during the thirty-year period, while the number of owned farms increased only 34 per cent. The growth of tenancy is not to be excused or condoned. It is not a healthful sign of rural life and must be checked if the American farmer is to realize the ideals of an industrial democracy; if he is to contribute his share toward what goes to make up an efficient citizenship.

There are in the United States upward of three million transient farm laborers whose position in rural life is precarious, to say the least, and there are perhaps an additional million of young men who are just starting life on the farm. All of these are practically beyond the reach of agricultural education in the public schools, except the few who may be reached through continuation classes, extension courses, civic societies and local farmers' organizations.

Very little may be accomplished among the six and one-half million farmers living on their own or rented land, because their ways, their habits of do-

ing things or of failing to do them are reasonably well fixed. They do not respond to contact with new ideas. They are not susceptible to new methods. In a certain Indiana village where a county agricultural agent had organized a township association of farmers, the young men only could be induced to attend the meetings. In one instance, twenty-two out of twenty-five present were under the age of twenty-five. Yet the subject under discussion was "smut in wheat," which was responsible for heavy damage to the crop just harvested. Agricultural extension courses and short courses given each winter at the agricultural colleges may do something toward reaching matured men who have not lost interest in new methods, but they are wholly inadequate, even pedagogically wrong, as applied to boys in the public schools whose minds are fired with curiosity not only of knowing *how* the soil is to be prepared to raise better crops, but of knowing *why* it should be prepared in a particular way.

The propaganda of agricultural education is designed primarily for the million boys living on the farm who have not yet left the public schools and the millions to follow them who will receive the disclosures of scientific experimentation and investigation with youthful enthusiasm and adolescent faith.

Agricultural education is not to be merely a training for the successful production of corn, wheat, cherries and sleek cattle. The agricultural extension

courses and the farmers' short courses are doing that because, probably, it is the best that may be done with mature men who have not the time and may lack the inclination to delve deeply into underlying principles; who may be past the age of learning *why* given causes produce certain effects. Perhaps five million farmers attend institutes, receive instruction from itinerant specialists and other forms of institute activity each year. This is all very well, but the boy in the public schools who is being educated for the farm must know more than railroad specials and institutes are able to give, and the schools must be capable of developing these underlying principles. He must know enough about the chemistry of soils to understand why frequent cultivation is necessary and why certain plant food is required for given crops. This is the scientific or cultural phase of education for the farm, and the boy will do well to get this cultural foundation in the public schools.

Agricultural credit is an important means by which production may be increased. The farmer's money is not available at a time when it is most needed. The farmer should have facilities for financing his crop at the beginning of the season, and, for low rates, he should be able to obtain reasonable amounts of money for drainage, for feeding stock, fencing and equipment. Under present conditions he must pay fabulous rates and, for these

purposes it is difficult to obtain at all, unless he happens to have credit apart from the crop just about to be produced.

Whatever surplus the farmer has left in the fall when the crops are harvested is deposited in the country banks, from which it finds its way to the city vaults to be used in financing industrial enterprise at low rates and where the element of security is vastly less than that of farm investment. This was the finding of President Roosevelt's Country Life Commission after a thorough investigation of banking conditions. A report of the controller of the currency on the condition of national banks for one period in 1914 showed that out of \$415,399,-620.64 on deposit in the national banks of Indiana, Minnesota, Iowa, North Dakota and South Dakota \$198,570,605.39 was in time deposits and not subject to check. A good part of this money goes to reserve cities to be loaned out at two or three per cent. The farmer should be able to maintain intimate business relationship with the banker, and he ought to have banking facilities equal or superior to the manager of industrial enterprise.

Legislatures and congresses for a generation have been seeking an equitable system of agricultural credit—cheap interest rates for the farmer, to which he is entitled by virtue of the stability and security of his investment. Yet the sum total of investigation, discussion and debate has not even determined

whether it is expedient for the federal government or the states separately to undertake the administration of a credit system. If a system is ever put into operation, it must be effected through the influence of the farmers themselves, and it remains perhaps for the boys who are to be educated in agricultural schools to devise a satisfactory scheme and give it the sanction of law.

Accurate bookkeeping should determine what are the profits and losses of the farm, and annual balances should serve as guides for the succeeding year. Few farmers are able to tell at the end of the year how much money they have made and many are unable to tell whether their business is being run at a gain or loss. No large business could survive the want of trial balances and no business, large or small, could endure if it were run as most men manage the financial department of the farm. Barn doors and tool chests are quite inadequate for the bookkeeping of the farm. Yet perhaps three-fourths of the farmers make their only entries in these places. Farmers ought to know how to segregate accounts for every department of production, and separate accountings must show the losses of raising rye as well as the profits of feeding cattle for beef.

Some farmers no doubt would find, if their books were balanced at the end of the year, that they could have made more money by working for a dollar a

day for some one else. Yet it would take a careful balance to convince them of their losses. Out of the agricultural education movement may be devised a simple system of bookkeeping for the farm, with tables of depreciations on farm equipment that can be readily understood. Not until bookkeeping is accurate and scientific can the farmer tell whether he is going backward or forward. Farmers make little effort to-day to "keep books," because they do not know how to proceed.

Not only ought agricultural education to point the way toward the successful production of corn, wheat, oats, rye, potatoes, clover, alfalfa, tobacco, cotton, rice and sugar-cane, but it ought to point the way toward the most profitable selection of crops for particular soils and climates. Diversified farming will have much to do with the volume of future profits. As land values increase, farmers are compelled to acquire the capacity of adjusting themselves to changed values, else they will find themselves persisting in the raising of crops that can no longer be sold at a profit. It is very doubtful whether the farmers of Illinois, Indiana and Ohio can longer raise wheat in competition with the superior quality grown on the cheaper lands of the Northwest and Canada. Likewise, there is some reason to believe that oats may fall in the category of decreasingly profitable crops in the prairie states.

Farmers in the three states attached to the prin-

ciple of crop rotation will not give up easily the practise of a passing generation to follow corn with wheat and wheat with red clover, yet when the arrangement fails to show a reasonable profit, substitutes must be found. Not that the underlying principle of crop rotation is ever wrong or must be abandoned, but simply that farmers may find it necessary to vary the crops which constitute the rotation. For this reason every farm must be an experimental station as well as the primary source of food products and the raw material for clothing.

Agricultural education in the public schools ought to make the boy an experimenter for truth. His investigations should proceed with unabated zeal when his school days proper are finished and his farm ever continue to be his laboratory. It is impossible to over-emphasize this fact: Education for the farm is a continuing process. There is not to be any quitting place, nor any point at which an end is reached. Farmers, perhaps, will need no extra inducement to maintain intimate relationship with the schools after regular attendance ceases. But the burden lies with the schools, and they must continue to have something new to offer. They must be ready at all times to accept the practical problems presented to them and assist in their solution. By following the trend of prices and profits, the schools ought to be able to give intelligent direction in the diversification of crops. In this respect they will

continue to be the farmer's compass even after his children have begun to learn the rudiments of soil chemistry.

Some farmers on farms of from eighty to one hundred and fifty acres, remote from the larger markets, have found it profitable to engage in fruit growing for local markets. Apples, pears, peaches, plums and berries, even vegetables, find a ready market in the smaller towns and villages where farmers devote a little time to the industry. It is not uncommon to find these smaller farms furnishing labor to half a dozen men and producing a net profit far in excess of that derived from vast tracts where diversified farming is not so easily carried out.

It is true that fruit growing in a small way or incidental truck gardening requires the same scientific attention as the industry on a larger scale if success is expected. Trees have to be sprayed regularly and pruning attended to promptly. Trees will no longer produce fruit unless they receive constant care.

A farm of one hundred acres in Illinois, Indiana or Ohio may furnish forage for fifty head of hogs twice a year, with red clover for fall pasture, but the same farm may furnish forage for one hundred head twice a year by the maintenance of a five-acre field of alfalfa for hay and for fall pasture after two or three cuttings. These are merely phases of diversified farming, the results of experimentation

and planning, that may increase the revenues of the same farm by one-fourth.

The farmer's interest in road-building is universally recognized. Good roads furnish easy access to markets and reduce the wear of the farmer's vehicles and machinery. They are civilizing agencies that open up to him the outside world, even more than railroads or trolley lines. Moreover, the farmer is interested not so much in the volume of expenditures for road-building, which amount to six hundred million dollars each year, as in spending wisely the money invested in this enterprise. He has a right to know whether the forty-four million dollars expended in state aid of road-building in 1914 was economically used. He ought to know enough about making roads to find in a general way the answer for himself. The farmer has no great commercial interest in the construction of so-called trunk line highways. The Lincoln highway and the Dixie highway are all very happily conceived conveniences for gentlemen who can afford to spend their winters in Florida. Except to the farmers who may live adjacent to such highways, they mean very little more than would the adding of another ring to the planet Saturn. The farmer's principal interest in roads for the present is confined to those of his own township and county.

The farmer should understand the importance of a discriminating selection of seeds and their prepara-

tion for planting, how to prepare the soil and how to cultivate it to conserve moisture, the chemical properties of different soils and of commercial fertilizer and what elements are needed for particular soils and particular crops, the growing of fruit and vegetables, the care of young trees and vines and the fertilization of trees.

Conservation is an important element in production and profits. The farmer needs to know the life history of crop pests and how best to avoid their ravages, the life history of orchard pests and the possibilities of spraying. The San Jose scale alone has cost the United States fifty million dollars and is now costing this country in damages to fruit trees five million dollars annually. The life history of common weeds and how they may be eradicated will constitute the most competent course in botany to be given in the public schools. The annual loss due to weeds in the United States approximates a half billion dollars and the dockage of wheat in one state, Minnesota, amounts to a waste annually of two and one-half million dollars. Indiana's weed loss is estimated at fifteen and one-half million dollars every year. The care of farm machinery is not so much a matter of skill as it is a matter of habit. If the boy is taught to take care of his tools in the manual-training shop, he is not likely to become careless with his machinery. Farm machinery in use to-day is valued at nearly a billion and

a half dollars and probably a fourth of this value is lost every year through sheer carelessness.

Raising live stock has become an important industry on the farm. Its value to-day is nearly one-eighth that of all farm property. The young farmer will find it profitable to know the virtues of the various breeds, about their care and feeding, diseases common to domestic animals and something about their treatment and prevention. Poultry raising and dairying should not be neglected.

In the manual-training shop, the young man will learn, and does now where manual training is taught, the use of small tools necessary on the farm, and all he needs to know about electricity and physics. This knowledge is more important than formerly because of the possibilities of new and improved labor-saving devices.

As one authority has said: "The movement of agricultural education is broader and more comprehensive than the mere adding of a recitation once a day from a text-book telling in a brief way how soil is formed, how plants should be raised, and giving a few pictures of fancy poultry and high-bred stock."

While agricultural education in the country proceeds upon the theory that the dominant vocational instincts of children in a rural community are agricultural and not industrial or professional, care should be taken that country boys whose vocational

instincts are *not* agricultural will receive equal encouragement to follow out the bent of their vocational inclinations, whatever they may be. A good mechanic or a good physician must not be spoiled in a vain endeavor to make out of him a good farmer. A carefully planned system of vocational guidance will discover the young man or young woman with anomalous tendencies toward the choice of a life-calling.

Furthermore, the curriculum must be flexible. The teacher of the future will be capable of using every resource which the community offers. The application of what is taught will generally have to do with the problems of the community. If the lesson be about weeds and their eradication, the study ought to concern the weeds that infest the farms of a single locality; if about crop pests, the study should deal with those pests current at that time and in that place; if about the care of machinery, the exhibits must be the machinery used in the locality where the boys live. If botany is studied in the rural schools of Illinois, for instance, the text ought to be one written for Illinois and not New York or Massachusetts. It is the failure of the teacher to use the resources available locally that has made the school uninteresting to a very large per cent. of boys between the ages of ten and sixteen who are not in school during any part of the school year. There will have to be a more careful preparation of

text-books, and the book that may be used intelligently in one part of a state may be wholly incongruous in another.

The independent success of a few men of broad vision and of infinite capacity for converting the dreary details of farm life into interesting problems—and of solving them, has exerted a localized influence for better farming. Men of large business interests dependent upon agricultural prosperity, who have enjoyed sufficient leisure to become introspective, have contributed occasional brochures of extraordinary interest on such subjects as the imminent shortage of the food supply, the absence of more free land, high prices, waste, drainage, the middlemen and the railroads. All of these questions are so closely related to the business of successful farming that they have elicited wide-spread interest among all classes of people, including professional educators.

Young men who have gone from the farm to the city to avoid the wearisome monotony of sowing and reaping and have failed to find the city all they hoped it might be and who have retraced their steps back to the farm, have proved not infrequently that zeal in rural life may be acquired from living for a time in the city. These young men, after a brief sojourn, have brought many helpful things with them from the city, not the least of which are method in doing work and mental habits which make possi-

ble a more or less scientific approach to bountiful yields of corn and wheat, a profitable orchard and well-considered marketing.

But these are merely sidelights of the movement for a system of agricultural education that will be universal in its sphere. Although agricultural prosperity apparently is greater to-day than ever before, we should not undertake to maintain that conditions are so much better because the aggregate wealth is greater. We are not quite so ready to cite aggregate wealth as an evidence of prosperity as we once were. We now know the fallacy of the allegation that three men are prosperous if one of them has ninety-five per cent. of their total wealth.

Not long ago there was a period from the middle of November to the first of March when very little work was done on the farm. The business man can not afford a four- or five-months' vacation, nor can the farmer. The business man hardly dares to quit work for two weeks. Not that the farmer does not work hard enough, but his work is poorly planned if he has nothing that he can do a third of each year. It were far better for the farmer to quit work at noon on Saturday every week in the year than to work long hours during the spring and summer season and cease work altogether during the winter months. The farmer who loves his work and who is bent on attacking its problems systematically will not care to pass long periods in absolute idleness.

He will find something profitable to do, no matter how bad the weather may be, and he will work where he may be comfortable. The first warm days of spring will not find his stable doors banked with manure, his seed for the spring planting unprovided or his tools unfit for immediate use. He will have carefully planned his work for the next season and will have attended carefully to the feeding of his stock. The long evenings he will have spent in reading the literature of the farm.

As the landscape gardener plans the beautiful park with its boulevards, its lagoon, its shrubbery and its attractive vistas, so must the farmer plan his work long in advance of the actual effort.

As much perhaps as any other industry, farming has become one for highly specialized and trained minds. It has always required brains as well as brawn, but as long as there was no danger of underproduction, it was not so important socially that many active-minded young men left the farm for the city and that there remained the young men who lacked sufficient initiative to depart from the ways of their fathers. To-day it is different. As prices of food products have risen, as markets have widened and values of farm lands increased, farming is far more a vocation for brains than ever before. Young men who inherit farms which their fathers and grandfathers carved out of a rude wilderness may be able to get on by following obsolete methods,

but young men not so fortunate will never be able to own a farm of their own unless their vision is widened by scientific facts.

The farmer will not be able to escape muscular effort altogether. The hard labor must be performed. Drains must be laid, the soil plowed and cultivated, the harvest reaped, no matter how hot the sun may be. Improved machinery, however, has already done much to lighten the labors of the farmer and will do even more.

Agricultural education will do more to lift the farmer to a plane of absolute equality with business and the professions than any movement yet started in this country. The country "rube" will be remembered only in fiction and in silly plays that have long runs on Broadway. Agricultural education will give to the farmer a new self-confidence, a new self-respect. It will secure his economic status and widen his social vision.

CHAPTER VI

BUSINESS AND ITS EDUCATIONAL NEEDS

Four fundamental processes of business—Distribution is vital to the economic progress of the nation—Exploitation of natural resources no longer possible—Specific education for the science of business is needed—All classes should become familiar with elementary business practises—Agencies of education have failed to grasp commercial problems—Certain aspects of foreign trade—Germany's commercial prestige founded on the careful training of commercial workers—Our need of trained consuls—Seven million people depend upon "picking-up" process of education—Our commercial failures are increasing—Our lack of self-reliance—Labor efficiency is a matter of simplified effort—Mismanagement of railroads—Training for salesmanship—Advertising—Our banking system is inadequate—Commercial education in Germany—Our educational needs.

BUSINESS has to do with four important processes—the production, preparation, distribution and consumption of commodities. Business, therefore, has to do with the most improved methods by which these processes may be carried on. It is through their intelligent performance, as Herbert Spencer said, that civilized life is made possible. Their intelligent performance depends, as Spencer also said, upon scientific knowledge. There is no phase of human life that does not depend for perpetuity and wholesome progress upon accurate business precepts and practises.

Of the four important processes with which business is concerned, distribution is most vital to all our people. It affects a greater number of people directly because it opens or closes to them the channels of consumption. Its indirect effects are felt almost as keenly in the production and preparation of commodities because these processes must look ultimately to markets which our system of distribution seeks out and finds. From the social point of view, therefore, distribution determines to some extent the economic status of all our people. This is particularly true since we are all consumers and since about twenty-five million workers are also engaged either in primary production or in the preparation of commodities for consumption.

While the country suffers a most pressing need for improved methods of distribution, an equally urgent need exists among the seven million men and women engaged in all departments of business for a more efficient grasp of their routine duties; a more comprehensive understanding of the commercial objective; a more thoroughly scientific approach to business details. Since business necessarily includes the directing energy of production and preparation as well as the entire energy in the distribution of commodities, it is with these various phases of industry and commerce that we are here interested.

While we are providing vocational education for the industrial worker, the farmer and home-maker,

we must not neglect the directing minds and hands of production and preparation, especially in mining and manufacturing, or the energy by which raw or finished products are distributed. This energy also must be trained. The minds which control the energy are susceptible to education for efficiency, hitherto unrealized. There can be no considerable progress in business unless executives and managers and officials are capable, and education for business might concern itself solely with the training of executives and managers and officials except that a great body of commercial workers—small merchants, salesmen, stenographers, bookkeepers, clerks—would be neglected altogether. The lower reaches in the process of distribution are important to the success of the higher reaches. Education for business has to do with the training of accountants and clerks quite as much as sales managers or purchasing agents, even though the emphasis of this chapter rests, as it ought to rest at this time, on the larger shortcomings of business—those for which managers and directors are mainly responsible.

Never before did the very happiness and comfort of our people so much depend upon a scientific grasp of business. We can no longer depend for our prosperity upon the exploitation of raw materials—land, minerals and forests—because, forsooth, they are not available for further exploitation. Agriculture invokes our attention because it has come to be

a problem of yielding a satisfactory return on fixed capital as well as of feeding our people. Mining can hardly keep ahead of consumption, and the best grades of lumber available a generation ago are not to be had to-day at fancy prices. Agriculture, mining and lumbering, by necessity reduced to quantitative formulæ, have brought industry, trade, transportation and banking, face to face with violent readjustments of method and imminent commercial problems where exact knowledge accessible to trained minds only is helpful. We have now to look for markets for things we do not yet produce because thirty-eight million people must have employment at a comfortable wage. We have to consider untried processes because old ways fail to keep going industrial, mercantile and financial enterprise. If we suffer from commercial depressions, we must remember that agriculture is haphazard, industry inefficient, trade prejudiced by obsolete theories and banking behind the times it seeks to serve. Primary production being wasteful, the subsequent stages by which it reaches the consumer are disorganized, unreliable and extravagant. What we need is not so much statutes which declare certain practises legally wrong, but a public awakening to the fact that practises legally wrong are actually wrong as matters of national or individual policy. Specific education for the innumerable departments of business—education that will reduce business to a science and meet

squarely the imminent problems of the commercial vocations, is our crying need at this time.

Whatever vocation the young man chooses; whether he identify himself with the wage-earners, the shop-keepers, the farmers or with one of the professions, he ought to know the elements of business practise—the simpler details of banking, the general functions, uses and elementary law of stocks, bonds, mortgages, deeds, notes and contracts; methods for the quick calculation of interest and discount; the fundamental law governing partnerships, stock companies and corporations; the elements of taxation and perhaps the workings of credit bureaus and commercial agencies. That young men may have this information when they begin the business of life, instruction should begin in the elementary or prevocational schools. For the purposes of grouping its vital departments and for the purposes of this chapter, business may be said to embrace manufacturing, transportation, merchandising and banking. The question presented herein is, what may education do for business? What may education do for manufacturing, for transportation, for mercantile operations, for banking? It does not require an imagination to believe that manufacturing is not so efficient as it ought to be; that transportation facilities are insufficient, somewhat unreliable and wasteful; that the retail and wholesale trading in merchandise is leaky, wanting in vision, moral-

ity and scientific management; that banking is untrustworthy, inadequate, over-greedy and narrow-gauged. What may education do to create better conditions in the four departments of business? There has been little scientific study and criticism of the commercial objective. Business itself has evolved practically all of the scientific knowledge at hand regarding commercial principles and practises. The agencies of education have contributed little.

“Business,” says Cheesman A. Herrick,¹ “now means more than a rule of thumb; it is complex, intricate, scientific, and those who are to engage in it need a different equipment than has hitherto been thought sufficient for the business man.”

The equipment needed for business varies, naturally, with the nature of the particular business for the very reason that it is complex, intricate, scientific. No doubt some men will be “born” to a particular business just as some are perhaps “born” to a particular trade, but there is an opportunity through the channels of education for those badly born to be reborn. Education is able to train for manufacturing even though the time is remote when it will train for manufacturing, say of washing machines. There are certain general principles, however, in the science of manufacturing washing machines that apply equally to the manufacture of

¹ *Commercial Education, A Demand of the Times.*

stoves or automobiles. Education can present these principles to young men who expect to engage in manufacturing. The colleges have been trying to teach the science of transportation for many years, but young men who expect to engage in transportation enterprise need to know far more about transportation than merely the general history of its development. There is a political division on the question of aids and subsidies to promote water transportation which has obscured the merits of the question. Mercantile operations present a tortuous path to success and those who have engaged in the retail or wholesale trade will bear witness to this truth. Education can at least find the approximate width of this path and point out its boundaries.

Banking is admitted to be the keel of commerce, the foundation of a nation's prosperity, the magic touch that sets in motion every business enterprise. Bankers lack vision more than anything else, but lack of vision is only another name for ignorance. Bankers can be educated for their vocation and, valuable as apprenticeship is, they can acquire from an educational program the assembled intelligence of the banking world, something they will never be able to get in a single accounting room.

Certain information and training are needed in all business—manufacturing, transportation, merchandising and banking. Penmanship, commercial arithmetic, bookkeeping, commercial geography, the

natural sciences, typewriting and stenography, industrial history, business forms, and correspondence, the science of trade, political economy, cost accounting, some modern languages, business administration and the theory of modern mercantile operations may well be embraced in a general system in training for business to which may be added, say, the principles of corporation finance, salesmanship, advertising, real estate taxation, commercial law, money and credit, insurance, study of raw materials, civil government, foreign trade customs, according to the scope of business for which preparation is sought. This is merely a rough outline of a program of training for business which will divide itself in accordance with the plan outlined in this book into prevocational, vocational and advanced vocational training.

There is a hint of hopefulness in certain aspects of our foreign trade. We are exporting a greater percentage of finished products than ever before and importing a considerably greater quantity of raw products. Great Britain, Germany and France have been our greatest foreign customers, buying annually of us merchandise valued at more than a billion dollars. The European military crisis has greatly changed the character of this trade and our lack of merchant ships has had a further depressing effect on our foreign commerce. We have suffered a temporary loss of revenue on account of the suspension

of foreign textile operations, but if the war should stimulate the expansion of domestic manufacturing and the use of our raw cotton at home, our temporary embarrassment would be unimportant. We ought to abandon our trade in such commodities as logs and unfinished lumber of which we are accustomed to sell Germany, products valued at five and one-half million dollars. The United States must conserve its lumber for domestic consumption.

South American trade is inviting, especially since the completion of the Panama Canal, which shortens the distance from eastern cities to South American ports south of the western terminal by five thousand miles. But our steamship service must be improved, we must buy the raw products of South America that ships may be loaded both ways and establish American banks for the benefit of this trade. We ought to be able to compete with Great Britain and Germany in the sale of such commodities as electric wire and cables, iron and steel wire, general machinery, railway coaches and cars, cement, firearms and ammunition, tubes, pipes and motor-cars. As a matter of fact, we are a bad third in the trade of practically all these commodities.

Germany won the trade of the South American republics in its laboratories and in its schoolrooms by patient and skilful attention to the needs of the country. The United States can win this trade as Germany won it. We must adopt the same plan of

action. The rule of thumb must be abandoned. Business must be made scientific. Commercial education can give to our foreign business the scientific basis it has so long needed. Spanish is the prevailing tongue throughout Mexico and South America and in our commercial schools it ought to be emphasized to the exclusion of languages which are wanting in commercial significance. We must seek the markets of South America, Mexico and the Orient and a knowledge of their languages is imperative to this end.

We need better trained consuls to represent us in foreign markets and we need to arouse an interest among our business men in the facilities they already furnish. There ought to be special provision for training young men for foreign trade posts. At present, our consular service smacks too much of the sinecure, largely because our representatives, unless they have had wide experience, know little about their work and have little inspiration for it.

"The getting of markets," says Herrick,² "is not extravagant claims; it is a matter of education, and if we are to insure our economic future, we must give to our commercial leaders wide and deep training in the special subjects with which they have to deal."

² Cheesman A. Herrick, *Commercial Education, A Demand of the Times*, in Supplement to *Fifth Yearbook of National Herbart Society*.

But our domestic trade requires careful consideration and while we are devoting ourselves to the commercial needs of South America, we should not forget that home industry and home markets and home consumption are more nearly vital to our prosperity and prestige. "It is mere tradition," says one writer, "which makes the foreign field seem a more proper subject of governmental solicitude than the domestic field."

There were nearly seven million people over ten years of age in 1910 engaged in work which may be included properly in the managing or business vocations. These seven million people included the managers, superintendents, foremen, overseers and officials of manufactories, retailers, clerks, traveling salesmen, bookkeepers, persons directing mining enterprises and about a half million people actively engaged in directing transportation and communication. Seven million people represent about eighteen per cent. of all the people of the United States over ten years of age engaged in gainful occupations. This eighteen per cent. is an especially important per cent. to the prosperity of all enterprise because it encompasses the directing energy.

It is these seven million people who are forced to get their education for business in the "nooks and corners," who receive no specific assistance from the public schools. They have acquired a limited knowledge of the science of business by empirical meth-

ods, by the "picking-up" process. Such training in the office, store and shop, is generally less comprehensive than the source. It yields to the same variable as the dirt got from one hole to fill up the next. The son, who inherits his father's business which it has taken a lifetime to build, may destroy everything by a few years of reckless misdirection, merely because he has had no opportunity for training other than that in dead languages obtained in universities attractive because of their traditions.

The "hocus-pocus" process of catching on to scientific methods of business is quite inadequate for present-day needs. It does not develop initiative, but is dependent wholly upon imitation. It does not develop a progressive spirit, but is content to follow archaic methods. It fails to produce a spirit of permanence in business and industry and on the contrary is speculative, insecure and unethical. Sales managers, failing to realize on stupid or visionary plans, are wont to turn to sharp practises and our sharp practise has given us a bad name in most of the great markets of the world. Our business men are not prepared to meet the new and changing demands of industry and trade. A superior economic leadership is required. A wider vision is demanded. Our commercial responsibilities have been very much augmented lately by territorial expansion, by the approaching exhaustion of our natural resources, by our increased population, by the unex-

pected demand of European countries for our products.

Since 1880, the population of the United States has just about doubled; the wealth of the country has considerably more than doubled, as has also the number of manufacturing establishments. At the same time, the number of commercial failures in the United States has more than trebled. Likewise, the liabilities of fifteen thousand-odd firms failing in 1912 were more than three times the liabilities of the firms failing in 1880. The number of commercial failures in the comparatively normal year of 1912 was three times the failures of the panic of 1873 and exceeded the failures during the panic of 1893. Of the total failures in 1913, 69.9 per cent. were mercantile firms, 26.3 per cent. were manufacturers, and 3.9 per cent. were brokers and transporters. More than 90 per cent. of all tradesmen are said to fail, and the average life of all business enterprises is only a very few years. This is not a creditable record for the American business man, not an enviable record for the business of the country.

There should be a more delicate coordination in primary and secondary industrial processes, coordination in the manufacturing process, coordination in the distribution process and coordination between the two processes. Efficiency is the magic word, efficiency not only of labor, but efficiency of

the energy which directs labor. "The labor to be made more effective," said Louis D. Brandeis, "is that of the managers and high-salaried officials quite as much as that of the wage-earners."

In the United States, business has depended too much on fictitious aids. There is lacking both the spirit of independence and self-reliance, a spirit that is conscious of its own power, willing to work out its own destinies, and safe in its own resourcefulness. Business men lean too much on tariff schedules, subsidies and bonuses. Public utility magnates will not undertake a new enterprise unless they are presented with a franchise that practically robs the people of their present rights and future generations of their rightful heritage. Bankers grumble about currency laws and have nothing better to suggest than the vague outlines of a plan which would only accentuate whatever viciousness there may be in the present banking system.

Here again, we shall find the explanation in the failure of the educational system to train young men for business as a fixed and definite vocation,—a vocation intimately related to the economic life of the nation.

When men are trained scientifically for business, the rule of thumb will no longer govern. Accuracy and precision will prevail. We will not be compelled to await the annual audit to determine whether a firm has made money. Correct systems of cost ac-

counting, rigidly maintained, will determine instantly what has been accomplished and whether the balance is on the debit or credit side of the ledger. Business is very much in need of cost accounting, a subject which yields readily to instruction in the vocation schools of commerce.

Our people need to be educated to use commodities of the very best material and workmanship. Any other policy is extravagant and wasteful. Every year, for instance, we waste many million dollars in buying cheap furniture—chairs, tables and beds—that fall to pieces in a few months. Comparatively, we make very little good furniture in this country, first, because we do not have workmen who know how to produce it, and second, because the purchaser has been deluded into believing that bizarre curves of a power-driven chisel are preferable to material and workmanship. If we educate every young man to the economy of good material and good workmanship and a few of them to produce such finished products in the furniture industry, there will not be left a market for the “clap-trap” which fills the homes of people with modest incomes. The German people have been educated to the use of better material and workmanship in precisely this way.

Manufacturing and mercantile plants are inefficiently operated because, probably, the directing hand does not know how to make them efficient. When the directing hand can not determine what is

wrong, it is quite natural to charge deficiencies to labor. If foremen, superintendents and managers lack scientific preparation for the positions they fill, they will not know what is to be done when they find themselves being outstripped by a competitor.

Raw materials must be available in just sufficient quantity to insure efficient handling. Every part of the manufacturing plant must be utilized for maximum production. There must be no waste, no idle machinery, if it is possible to avoid it. Working capital must be safeguarded and conserved, but opportunities for plant expansion must not be permitted to pass. In mercantile enterprises every department must be "made to pay." Deliveries must be prompt, for there is no better way to get and hold customers.

Labor efficiency is not a matter of "speeding up" so much as of simplified effort—of removing drags on the workman's energy. This is a subject calling for intelligent study by foremen, superintendents and "higher-ups." The workman is not responsible, and managers who persist in their complaints against the "decreasing efficiency of labor" are themselves often at fault. Furthermore, managers of industrial, mercantile and transportation enterprises must be reconciled to the steady improvement of wages and working conditions. For this reason, a constant adjustment and readjustment of methods to conform to new cost units will be necessary. Increased wages and improved working conditions will

be brought about largely by collective bargaining and industrial managers may as well acquiesce in the spread of collective bargaining because it is a phase of our new democracy—industrial democracy—and will not be surrendered.

We are just passing through an era of railroad reorganization in this country. We have witnessed the financial collapse of one railroad after another and we have seen officers and directors dragged through the courts to answer to charges of criminal neglect, wrongful manipulation of securities and gross mismanagement. In the wake of investigation, revelation and prosecution, the railroads have come humbly enough before the bar of regulatory commissions asking for increased rates. In some cases, the petitions have been granted but, on the whole, the tangled state of their finances and the attendant public distrust have prevented a fair and impartial consideration of their petitions. Well managed roads have suffered the odium that attaches generally to the railroad business. It is difficult to determine how much of the mismanagement is due to greed, wilful inefficiency and unrestrained speculation and how much is due to ignorance. In some cases, officers and directors have been shrewd enough to loot a railroad treasury and escape prosecution. Education for business is a hopeless remedy in such cases. What is needed, rather, is education in morals.

But the era of speculative control is at least checked and, more than ever before, railroads will be operated for service. Regulative bodies are expected to insist that common carriers will no longer be permitted to capitalize earnings; that transportation be reduced to the science of operation. Assuming that this is true and remembering that a well-known corporation lawyer, who has since demonstrated the truth of some charges he made against the railroads, estimated that they waste a million dollars a day, it is almost conclusive that education can do something for transportation. It ought not to be necessary to have the Interstate Commerce Commission disclose the existence of practises that are unproductive and wasteful where they ought to be otherwise. Much to the chagrin of the railroad managers, the Commission has repeatedly done this very thing. Yet, the only explanation offered by the railroads was that others were doing the same. If education for transportation can merely devise a correct basis by which the cost of carrying different classes of mail may be computed, it will have thoroughly justified the expense of inaugurating such a system of vocational training.

Inefficient salesmanship is only one phase of the mercantile business. It is pitiable enough to witness a salesman hunt a catalog by which to identify, by the period it represents, a piece of furniture or to mistake solid mahogany for veneer, but the retail

and jobbers' business has a hundred angles where inexcusable blunders are made.

There is scarcely a large department store which every day does not lose a good customer because department stores are overrun with four-dollar-a-week clerks. It is bad enough, perhaps, to pay girls four dollars a week—bad from the social point of view—but it is quite as disastrous to business to employ young women who are so poorly trained that they can earn no more than that amount. Store managers do recognize, of course, a difference in selling ability since salaries vary, but apparently they have not been able to understand that an inefficient salesman or saleswoman, the four-dollar-a-week order, is a positive injury to the prosperity of a business. Very few store managers have been able to comprehend the possibilities of efficient training for salesmanship. Unless the public is to believe that department stores presume to impose upon the credulity of their patrons, it is hard to explain the presence of ignorant and discourteous salesmen. There are many elements in the advertising of the average department store—sheer quackery—which suggest that this is precisely the philosophy behind the inefficiency of salesmanship in department stores. What is true of department stores is equally true of retail business generally.

Of course, it is worth while to have correspondence neatly typed and correctly spelled, but it is also

worth while to depart from stereotyped language in correspondence. Business can not survive long under the stress of modern competition unless there is a rigid system of cost accounting, and the mercantile business is no exception. Business men need to have impressed upon them at a time of life when new principles make their greatest impression—in their youth—the importance of courteous service, rigid economy in operation, prompt deliveries and accurate fulfillment of promises and estimates. Bankers who advance money to maintain commercial enterprises have a right to expect that estimates are conservative and that merchants as well as manufacturers and transporters will do everything humanly possible, not merely to equal the estimate, but to exceed it. Too many young men fail in mercantile capacities because they bring to the business no new ideas or because they merely fall into the rut already prepared for them by those who are too old to learn anything new and too stupid to admit their shortcomings.

There is growing up in America strong sentiment for truthful advertising. Here and there a firm has won for itself an enviable position in the commercial world because its advertising is truthful and the public knows it. On the whole, if advertising is a disappointment and unfruitful, it is because the majority of people have little confidence in it. Advertising is not only a great science in itself, but an im-

portant phase of business and a natural unit in any program of training for business.

Without wise and progressive banking facilities no country can accomplish very much of consequence in domestic or foreign commerce. Not the least important reason for German and English prestige in South American markets at the beginning of the European war was the facility afforded the merchants of these countries for doing business with German and English banks in South American republics. In the United States, our banking facilities have been wholly inadequate and quite unreliable. Moreover, no system of banking will of itself prove to be adequate. Bankers of wider vision are necessary to the success of any system. Banking is a distinct vocation. It must understand the needs of business and be prepared to meet all legitimate demands which business may make upon it. Too frequently the banker has stifled worthy enterprises by withdrawing or withholding credit at crucial stages. Too many business enterprises are controlled and attempts at operation made by men who are merely bankers. Control of the railroads by bankers accounts for much of their present trouble. Bankers too often are quite ignorant of more than the crudest processes of operating mercantile, manufacturing and transportation enterprises. Moreover, their object is apt to be concerned too largely with speculation rather than operation. This is a distinct misfor-

tune to business generally. Bankers either possess a narrow conception of their opportunities or they have proceeded into spheres with which they can not reasonably be expected to be familiar. Speculation is ruinous. Temporarily, it may provoke artificial results that seem beneficial, but disaster follows in its train. Years are then required to recover what was lost and what might have been gained by steady growth and wise systematic building.

Business is interested in the utmost efforts to be made in behalf of conservation. It is interested in the great annual losses from stream pollution, damages from fire and flood, wear of machinery, useless and extravagant advertising, over-production and over-buying. Only the man who attacks these wastes systematically can ever hope to eradicate them. We go on from year to year wasting our substance because we do not have men capable of summoning the strong arm of science as a preventive. It would be an important aid to business, may we not believe, if young men had this knowledge brought home to them?

Of course, the whole country is interested in the efficiency of business because efficiency not only is a problem for each individual, but it is a social problem of vital importance. The efficiency of business is a social problem because society is becoming more and more industrial in its texture. It is not too much to say that the inefficiency of business is responsible

not only for industrial depressions and unemployment, but also for much of the social distress attending idle workshops and unemployment. The efficiency of business determines very largely not only the status of seven million people engaged in the managing and clerical vocations, the status of ten million wage-earners in manufacturing enterprises, but also thirteen million persons over ten years of age engaged in farming.

Nearly all the great European countries maintain elaborate systems of commercial education for the training of young men about to engage in business. Germany has more than twelve hundred commercial schools, the first of which was established at Cologne in 1897. The system includes several hundred continuation schools for those who can devote only a part of their time to the pursuit of education. These continuation commercial schools are designed for persons from thirteen to sixteen years of age and provide a simple preparation for the lower commercial positions. A second group consists of higher commercial schools, equivalent to the last year of the American high school and the first two years of college. The third group of German commercial schools trains for the highest commercial positions and the curriculum is merely a continuation of the curriculum for the second group. Germany also maintains schools for the training and education of those active in commercial life. The predominant feature of

the German system of commercial education is that it not only is vocational, but cultural as well, because it demands the "thorough mastery of scientific subject-matter." German training, we are told, "gives to the man who goes into a trade a markedly different attitude than is given him by Anglo-Saxon education. With us the business man finds his livelihood in business, his life elsewhere; the German finds in business a means of life as well as livelihood."

In the United States, more and more of the great universities are establishing departments of business and administration but, as might be expected with us, the work is not organized for practical application, and, moreover, we have a vital need for commercial education of a secondary grade. True, there are many commercial high schools in the country and nearly a half million students receiving instruction in commercial branches, but half of them are attending private schools where education is lacking and training is only primary. We need a complete system of education for business that will begin not later than the first year of high school, also a system of continuation and part-time schools accessible to young men forced to leave school at the end of their elementary training and for mature workers, managers and executives.

The curriculums of the business departments of the universities warrant the closest scrutiny that they

may be made of practical benefit to the young man who wants to pursue a business career. This effort should not be permitted to lapse through the influence of men who are classically trained only and who possess no native sympathy for the work they seek to do.

It is just as logical that the universities should undertake commercial training of an advanced character, as it is that they should maintain special courses for training journalists, foresters, architects and librarians; or, lawyers, physicians, engineers, dentists, preachers and druggists. Business is proving more and more attractive to young men educated in the colleges and universities. This is true despite the fact that until recent years they have given no especial preparation for business careers. They have maintained thorough courses for the training of ministers, lawyers and physicians from the beginning, yet the statistics covering thirty-seven colleges and universities show that the number of graduates entering the ministry decreased from seventy per cent. in 1645 to 5.9 per cent. in 1900; the number of graduates entering the practise of law decreased from 33.4 per cent. in 1810, to 15.6 per cent. in 1900. Also the number of graduates entering the practise of medicine has been decreasing since 1825, when it was 13.4 per cent. In 1900, the number was only 6.6 per cent. On the contrary, there has been an almost unbroken increase in the number of

young men entering commercial pursuits since 1810. In that year the number of graduates of the thirty-seven colleges and universities who entered commercial pursuits was only 4.8 per cent. of the whole. In 1900, the percentage was 18.8.

At the same time, the number of graduates of these thirty-seven colleges and universities who took up educational work increased from 3.1 per cent. in 1790 to 26.7 per cent. in 1900, but it does not appear nor is there any way of discovering whether this increase is due either to increased attractiveness of educational work or to a native predisposition to teaching. There is a strong presumption that the increase was due in part to the fact that young men just graduated from these institutions found themselves unable to earn a livelihood in any other way and accepted the schoolmaster's burdens as the alternative between a precarious existence and a vocation they did not particularly like.

However that may be, the time is passed in this country when we are willing to concede any particular social distinction to the man because he happens to be practising one of the so-called learned professions. We are not so much deceived by the halo which tradition has placed on the brows of Webster and Everett as we once were. They were successful lawyers in their time and lived in an age when the law especially led to public service. Lately, we have seen men from all walks of life drawn into public

service and perform their work with zeal, patriotism and efficiency. This alone has tended to dispel the false notion that distinction in public service may be won only through the law.

Education for business, however, has a more practical end than training for the hall of fame. It addresses itself to the every-day needs of the manufacturer, merchant, transporter and banker in quite the same way as the good physician goes about to diagnose and treat our ills. Its mission is to facilitate the four great commercial processes,—production, preparation, distribution and consumption.

To be successful, education must be analytical in its approach and comprehensive in its attack on the business man's problems. In a sentence, its purpose is to collect, classify and distribute through the vocational commercial schools and other public agencies, the intelligence of the commercial world.

CHAPTER VII

TRAINING FOR THE HOME

Woman's chief vocational interest is the home—Effect of industrial changes on the work of the home—Lack of a scientific approach—Meager efforts of the schools to train efficiently for the duties of the home—Variations in the curriculum—General outline of training: food, clothing, fashions, building, house furnishing, sanitation, the garden, marketing, care of infants, common remedies—Music as a vocation and an incidental interest—Education will lighten the burdens of the home.

HOME-MAKING is a profession, a business, a science, an art. The most profitable education for women is education for home-making. It is, or ought to be, also the most interesting avenue through which the native instincts and impulses of the potential wife and mother can find expression; the center of all the issues of the woman's life. If it is not now so, it is because the early training of the girl and young woman fails to give adequate encouragement to native instincts and impulses. It is because present training tends to disparage rather than promote the healthful normal growth of the woman's mind.

Training for the home is designed only for women. Not all women, however, become home-makers. Only a very small percentage of women do

not—only a very few continue self-supporting through life. It is probably uneconomical to train young women for trades they will follow only three or four years. Unless a young woman has a decided bent for an industrial or commercial occupation and unless she determines not to marry and rear a family, her training should tend to equip her for home duties and home responsibilities. In this case she might become highly proficient as a seamstress, as a cook, as a milliner, as a nurse, as a gardener. If she live in the country, she might, for instance, be trained for the management of a poultry farm. Indiana has at least one woman, who, without any considerable previous knowledge of poultry, paid for eighty acres of land in three years from the profits of poultry. If a sufficient number of young women who want to follow a given trade permanently are to be found in any of our industrial centers, separate trade schools may be established. Yet it would seem the wise part to proceed slowly in this direction. If the woman is to be educated for any particular vocation, then the home would appear to be both the logical and sentimental center of her interest.

It may be said, however, at this point that the outlines heretofore set forth for industrial, commercial and agricultural education apply quite as much to women as to men, and that women who are to pursue an independent career are quite as much in need of scientific education as men. Moreover,

the educational needs of industry, of business and of agriculture for trained specialists include a need of trained women workers.

The part of a successful wife and home-maker is more important than that of the woman in business or the industries, because in the former capacity there is dependent upon her to some extent the financial success of the marriage relationship—the happiness of her children, her husband and herself. It has been said that the wife is the disbursing agent of the marriage partnership and since it is doubtful if marriage can be a well-rounded success unless it is a financially prosperous partnership, the ability of the wife to get the largest return for household and family expenditures becomes the basis of marital happiness. But she will never know how to spend money wisely unless she is thoroughly trained for all the departments of the home and all the intricate aspects of home life.

The character of the woman's work in the home has been greatly modified by our industrial revolution. Formerly, the wife expended much of her energy in primary production of commodities consumed in the home. She spun her own yarn, wove her own cloth, made her own soap, and helped to raise her own food. Now most of the commodities consumed in the home can be purchased more cheaply than they can be produced first-hand. Nevertheless, it is now highly necessary that the wife, act-

ing as purchasing agent of the home, should be an expert judge of values.

Present training is not even calculated to make her a judge of values. What she knows of this character must be got from her mother or neighbors or from unfortunate experiences and experiments. Every department of the home has a scientific approach and it is indispensable that each department be exposed to the young woman, from this angle.

No other institution surpasses the home in opportunities for order and symmetry, vision and beauty in its surroundings. Why have women failed to recognize these opportunities? Why have they failed to seize the problems of the home in the spirit of the artist? Simply because there has existed no agency for pointing out and unfolding the problems in their scientific aspects. The day laborer performs the drudgery because he is uneducated and untrained for the work of the director or manager. The work of the wife too seldom rises above the sordid tasks of drudgery or reaches the dignity of a science and an art, because the wife lacks the capacity of a household scientist, the vision of a household artist.

The principal business of the woman is that of a home-maker, because a large majority of women marry and have thrust upon them the responsibilities of a home. And while the marriageable rate for marriageable women is higher in this country¹ than

¹ Census of 1900.

in any other country except Hungary, our divorce rate is also the highest in the world except Japan. In the whole country there is one divorce for every thirteen marriages, but in certain states the ratio of divorces to marriages is much greater. In Washington, there is one divorce for every five marriages. Moreover, not all the failures of marriage are revealed on the dockets of the divorce courts. While unsuccessful marriages are not wholly due to lack of preparedness of the wife, they are partially so. If more women were carefully trained for the responsibilities of the home, probably there would be a wiser choice of mates and better results of the marriage partnership would follow.

The public schools have failed very materially to contribute to the successful education for the home. Elementary schools impart little information of use to wives, mothers and home-makers. Very little more may be said in behalf of the high schools and colleges. In the elementary schools, girls learn the rudiments of reading, writing and arithmetic, a little about world geography that means nothing, a bare outline of American political history, a mass of meaningless jargon about English grammar, none of which is intelligible or usable, and a few disconnected facts about human physiology, which for all practical purposes, might be the physiology of some extinct animal of the antediluvian age. The high school and colleges merely pursue the search for

facts begun in the grades, facts which have nothing whatever to do with the commonest interests of the girl after she has become a woman.

The public schools have done little to arouse a scientific spirit among home-makers. They have taught a little cookery, a bit of sewing and millinery and so-called arts and crafts. But there has never been a well-planned system of education for the home, no well-rounded curriculum designed to train specifically for home-making as a profession, a business, a science and an art. Instruction has been incidental, detached and variable rather than symmetrical, definite and concrete. Home economics so-called, consisting of a little cookery, or a little sewing, or both, frequently has been added as an appendage to a curriculum long ago obsolete for the time it would serve. It has seldom or never been admitted that cooking and sewing were the beginning of a thoroughgoing transformation of the public school curriculum.

Yet they are the beginning of a sweeping revolution which is to go on until we shall hear less and less about the history of decisive battles, the functions of the medulla oblongata, the twists and turns of the infinitive and participle, the deflections of trade winds and ocean currents.

Training for the home will vary according to the social conditions of the community and in this country—a melting pot for many peoples—somewhat ac-

according to the dominant nationality resident in the community. It will vary as between city and country especially; somewhat less between an industrial center and a city surrounded by an agricultural belt tributary to it. Training for the home in sections of the country where mining is the dominant industry will not call for the same curriculum as training for the home in the school of a fashionable New England village. Yet the general scheme is universal in its application.

Training for the home will have to do specifically with the selection and preparation of food, selection of fabrics and the making of clothing, the construction, furnishing and care of the home, planning and care of the garden, marketing, the care of infants, first aid to the sick and injured, something about physiology and hygiene and as far as personal talents warrant, at least a limited study of music.

It has been said that "half the cost of life is the price of food." Undoubtedly, this truth is emphasized by the growing margin between retail prices of food and wages. It is emphasized further by the fact that an increasingly large majority of the population must consider the economic aspects of the food supply. With economic considerations more and more pressing, the selection and preparation of food is of growing importance. It is the daily problem of getting the most nutritive food for the least money.

In whatever plane of society, the selection and preparation of food is important. When the economic significance is wanting, the biological rises to the level of the economic. The notion prevails that the appetite is the safest guide to a choice of foods, yet in this day when the appetite has been perverted by intemperance, it can hardly be relied upon as an index to proper food or as a guide to health. If every one enjoyed normal health and if there were no economic limitations, the appetite might be depended upon as a criterion of diet. But the question of diet, we now know, is becoming more complex.

Education must seize this problem as a scientific fact and reveal its complex phases to every class of society. Training for the home, therefore, must have to do with the science of foods; with the structure, composition, texture, flavor and digestibility of meats, the composition and fuel value of different cuts of meat, the comparative food value of meats and fish, and practical suggestions in regard to different methods of cooking; the food value of beans, peas, lentils and other legumes, fresh or dried, compared with other vegetables and with animal food; the place of eggs in diet and all possible substitutes; the composition, nutritive value and preparation of poultry for food; composition, digestibility, nutritive value and hygienic importance of potatoes, sweet potatoes, beets, turnips and other starch-yielding and succulent root

crops; the food value of corn and corn products; digestibility and nutritive value of cereal breakfast foods, nuts and milk; composition, nutritive value and relative economy of the more common fruits; the household preparation of canned fruits, preserves, jellies, etc., for use in the home and for market, the principles of canning and preserving, sterilization and the use of utensils in canning.

This outline is merely suggestive. The federal government is spending vast sums of money in experiments and investigations to determine what are the best and most economical foods for domestic animals. The results of these experiments and investigations have been translated into practical information for the farmer that is being used widely. The federal government has also made extensive investigations and experiments to determine the relative value of human foods. Yet much of this information is technical and tedious. It must be translated into language that can be understood by the average woman and incorporated into our proposed curriculum for the home-maker's training.

The home-maker must understand how to make simple food palatable and attractive. "Cookery," said a seventeenth century writer, "is become an art, a noble science." No woman can realize the widest opportunities of cookery unless it is, to her, a science and an art. Few women will regard cookery in any other light than as plain drudgery unless they are

trained to undertake it with a scientific spirit. If simple foods are to be made palatable, serving must be attractive. The housewife must be possessed of a keen artistic sense if serving is to add anything to the flavor of the food.

Training for the home should include a thorough study of the origin and process of manufacture of all fabrics used in clothing, as well as a complete mastery of method of making practically all garments.

Cotton is the commonest and cheapest of the textile fabrics. Its history, the sources and volume of supply, cost of production in various stages, nature of cultivation, by-products and their use, its process of manufacture, dyeing and uses for various purposes, are typical of the study that may be made of the other standard fabrics, wool, linen and silk. "Weighing silk," by dipping the yarn in bichloride of tin before dyeing, is a process that every woman should be able to detect in the finished product because silk that has been subjected to this process is practically worthless. Frauds in labeling are common and women should understand their legal rights under the label laws.

Not only is it possible to have cheaper garments from home sewing, but they are certain to be more durable because a larger investment in material is possible and more attractive if made by trained hands. Moreover, there will be a smaller market

for the shoddy product of the tenement shops, a result which is socially desirable. The sewing-machine is a great labor-saving device and its operation simple enough to be thoroughly mastered by the girl in the public schools. Drafting patterns, cutting and fitting are separate arts which may easily be taught in the public schools.

At some time in their lives girls have a keen interest in embroidery. The art is a very old one, primitive people having used the needle in this way. Girls should acquire a knowledge of the history of embroidery and be taught all the modern stitches.

Naturally, girls have an active and abiding interest in styles and fashions. Few know anything about the history of styles—that there is really nothing new in dress; that one year offers merely a repetition of something that has gone before, with slight modifications. Girls will be keenly interested in the story of present-day style making. If they really knew more about the source of styles, to which the sex is said to be a slave, perhaps there would be more creative and less imitative tendencies among women.

The woman is the chief purchaser of clothing in the home and upon her rests the responsibility of making the dollar buy as much as it will. Foolish expenditures in clothing are due principally to ignorance.

Construction and care of the building in which

the family is housed are worthy of special attention in any plan of training for the home. In city or country we see about us everywhere examples of architecture that are impractical, offensive to the eye or wholly out of harmony with their surroundings. In the first place, the house should be constructed for the convenience of the persons who are going to live in it, and within the financial limitations of the builder. Styles of architecture and arrangement of interior necessarily will vary as between city and country and as between different sections of the same city. Young women should know something about the history of architecture and the rudiments of building for different purposes and at varying costs. It will seldom be necessary to sacrifice beauty for convenience, and women who are to have the care of a house should acquire the facility of joining utility and beauty in planning for house building.

The selection of building material, plumbing fixtures, labor-saving equipment, especially for the kitchen, and the ingredients of paint properly concern the wife. Left to the husband, these things are likely to depend upon the snap judgment of a multitude of dealers whose object is to give the least for the most money.

When young women are taught more about relative values of house furnishings, there will be a far more restricted market for the car-loads of cheap

furniture sold one year and fallen to pieces the next. This is true of all house furnishings, but especially so of furniture. People with modest incomes should no more spend their money for unsubstantial furniture than any other class of people. It is false economy to make investments of this sort.

Home furnishings express as much as anything else the taste of the individual. There is little place for gilt chairs in the modest home. Pieces of plain lines or of soft willow will conform more nearly to the general atmosphere of the cottage and likewise be more durable where durability is an important factor. Curtains of plain pongee, scrim or simple muslin, printed in various bright colors, for many purposes are more desirable than clumsy lace, not only because they cost less, but because they appear to better advantage. There is a wide range of material at varying costs from which furnishings for the house may be selected and, at the same time, a definite scheme of harmony and beauty preserved. Selection of wall paper, for instance, is not so much a matter of cost as it is of taste, one of consideration for lights and shadows. Woodwork can be made to harmonize with the color scheme of each room and enhance rather than mar its beauty. Practical experience, gained in the school, in choosing colors, shades and tints, will do much to improve the cheerfulness of the home. Pictures may mar the beauty of an otherwise attractive room. Certain subjects

are adaptable to certain rooms and good prints are now so inexpensive that ignorance is the only remaining excuse for bad taste in choosing pictures. Rugs are generally preferable to carpets because they are easily taken up and cleaned. Inexpensive rag rugs of good design may look very pretty and they are preferable to the cheaper grades of carpet for most purposes if cost is an important item.

Sanitation is not so much a question of expenditures as it is one of ideas. The woman who has fixed notions of sanitation will prefer rugs to carpets unless she is able to clean her carpets frequently. In planning the house, the trained home-maker will provide for adequate lighting and ventilation. In the country there must be special provision for disposing of garbage, refuse and waste. Many inexpensive systems are offered. The young woman should know what they are and their relative cost. Private waterworks and lighting systems are fast coming into general use in the country and their cost is less and less prohibitive. They make the problem of rural sanitation more simple than ever.

Girls in the public schools, both in city and country, may be taught the planning and care of the garden, the preparation of hotbeds and the preparation of common vegetables for the table. Great saving in expenditures for vegetables may be realized from very small plots of ground and women

are likely to grow many vegetables for home consumption if their interest in the garden is aroused early in life. Their education, in this respect, will be similar to that of the young farmer for agriculture. They must know the life history of all common vegetables, how to protect them from common pests, how to prepare and cultivate the soil, artistic arrangement of vegetable beds and when to begin to cut or pull the vegetables for use. Perhaps young women will never find it necessary to perform any of the labor connected with a vegetable garden, but they will have the responsibility of supervision in any event.

Likewise, young women may add greatly to the attractiveness of the home surroundings if they have a live interest in flowers, trees and shrubs. A few young women will have a native interest in these forms of natural beauty, but the majority must acquire it. The maintenance of an experimental school garden with a brief study of schemes for planning will widen the popular interest in beauty for beauty's sake.

Marketing has become an important element in the prosperity of the home. We have a clumsy system of bringing the producer and consumer together and until radical changes are made in the system by which unnecessary middlemen's profits are eliminated, the housewife who is a trained buyer and who understands the relative cost of the different

items that enter into final values, will be able to get two or three times as much for the same money as the untrained and indifferent buyer. Necessarily, marketing has to do with the selling of everything produced in the home as well as everything consumed there.

From three-fourths to four-fifths of the family income, according to Scott Nearing, is spent for food, clothing, fuel and light, recreation, health and sundry minor items, all of which expenditures are usually made by the wife. The importance of skilful buying is obvious. Nearing estimates that there is a minimum of ten million families in the United States depending largely upon the income of some industry other than agriculture and producing little or nothing for home consumption. These ten million families, he concludes, at six hundred dollars a year, spend annually six billion dollars, which is an approximate estimate of the annual buying power of women, throwing the magnitude of marketing into the foreground.

In training for the home, the public schools should work out the unit cost of delivery systems, set forth the legal aspects of weights and measures, show the relative cost of commodities in large and small quantities, present the advantages of cooperative buying, and emphasize the importance of the budget system for household expenditures. Market-

ing belongs in any complete course of training for the home.

Nothing is more vital to the perpetuity of the family and the happiness of the home than the healthful and normal development of the young. Yet few mothers know very much about the scientific care of infants. The high mortality rate of infants can be traced directly to the ignorance of their mothers. Young wives have to depend, for all the information available about babies, upon their mothers and friends. As a source of information, this is both unreliable and inadequate. If a skilled nurse can not be employed, the baby frequently dies as a consequence of misinformation or no information.

Certainly, young women who expect to become mothers have a native interest in preparing for motherhood equal to that which leads them into the formulæ of higher mathematics and the forms of French verbs, and, as Herbert Spencer says: "When a mother is mourning over a first-born that has sunk under the sequelæ of scarlet-fever—when perhaps a candid medical man has confirmed her suspicion that the child would have recovered had not its system been enfeebled by overstudy—when she is prostrate under the pangs of combined grief and remorse; it is but a small consolation that she can read Dante in the original."

Young women should be taught what food in-

infants require and how to prepare their clothing. The first year of the child's life is the most critical as far as its health is concerned and its feeding requires especial care and consideration during this period. The alimentary canal is a source of most infant ills and if the mother knows how to keep it in good condition, little trouble of another nature may be expected; at least, during the first year of the child's life. Fresh air is important to infants and the popular notion that cold air is harmful to babies is erroneous. It is one of the many erroneous notions about the care of babies. Mothers should know enough to look after the infant's teeth, the nasal passages and the cultivation of proper habits of breathing. Many children grow up with deformed teeth and mouths because their mothers did not know how "baby" teeth should be cared for to preserve the contour of the gums for the normal growth of permanent teeth.

The common remedies for the commonest of children's ills, the mother should always have on hand and be able to use intelligently. Young mothers will be saved much unnecessary worry if they are familiar with child psychology, which might be a part of any comprehensive course of training for the home.

Wives and mothers should be trained to administer first aid to the sick and injured and be familiar with the essential equipment for extending this aid. A brief course having to do with common remedies,

antiseptics, liniments and gargles and the treatment of common ills can easily be given in the vocational schools.

It may be said that the proposed scheme of training for the home as outlined in this chapter will tend to make the life of the wife and mother a round of dreary monotony, a life in which her very being is submerged, a life in which she fails to find expression for natural instincts and emotions. Not at all! Such training will have precisely opposite effects. The life of the wife and mother tends to become a round of dreary monotony because she knows nothing about the science of what she is trying to do. She seeks expression for active impulses outside the home because those impulses have been diverted from the home by a "hocus-pocus" educational process which gave her a smattering of the learning that used to be housed in monasteries and might still be, as far as the interests of the home are concerned.

With no desire to assail the activity of women in the so-called "wider sphere," voluntary societies and organizations for the amelioration of this evil and that wrong, literary, art and scientific clubs, it seems quite certain that this activity is the forced expression of erroneous training in the public schools, rather than the expression of natural impulses.

A multitude of responsibilities patent to the home are apt to be regarded as drudgery merely because

they are performed in that spirit. Education can correct this erroneous spirit. Education and training for the home will lighten the home-maker's burden because they will add new angles of interest to each and every task the home presents. The selection and preparation of food, selection of fabrics and the making of clothing, construction, furnishing and care of the house, and marketing, may be undertaken either with the machine-like, monotonous point of view of so much time required for so much exacting labor, or, they may be anticipated with the zest of the scientist who is seeking some new economy of operation, some new expression of beauty, some new form of perfection. Training for the home is expected to develop and establish this latter point of view.

Music not only offers a pleasant vocational opportunity to women who have a talent for it, but it ought to have a place in scientific education, for modern home-making depending largely upon individual tastes and talents. Public school music has wasted too much effort on children without musical ability. Home education may well avoid this waste by proper selection.

Training for the home, as a necessary function of our system of public education, may be summed up in the language of the Federal Commission on Vocational Education: "Preparation for the varied duties of the home should be regarded as a legiti-

mate, integral part of the education of every girl; that it should be given throughout the entire school course, both in elementary and in high schools; and that it should be considered a necessary part of a girl's general preparation for life no matter what her particular calling might be."

Above all, education for the home must avoid training for the kind of home in which people do not live, training for experiences girls never have. Altogether the program is a serious one and means infinitely more than a passing fad since it involves the normal development of the finest and greatest graces of womanhood as well as the comfort, happiness and security of family life in America.

CHAPTER VIII

VOCATIONAL EDUCATION AND CONSERVATION

The waste of resources—Direct losses—Indirect losses—Mining—Lumbering—Soils—Insect pests—Animal diseases—Weeds—Lack of drainage—Agricultural production too small—Export raw materials instead of finished products—Waste of human resources—Child wastage—Preventable diseases—Accidents in occupations—Diseases of occupations—Conserving health and strength—Efficiency.

THE extent of preventable waste in the United States is appalling. The figures of the annual losses stagger the imagination. The losses due to failure to produce what we should each year adds to the enormous total and makes one wonder whether we are not in the realm of fiction. It is probable that the total preventable loss annually from all sources, direct and indirect, amounts to almost one-third of the entire value of the property of the country—or more than sixty billion dollars.

We have been living in an age of exploitation. We have been wasting and allowing waste of our resources like drunken sailors. The policy of taking all that could be got without regard to wise use or without regard to the economy of the whole has been disastrous. We have ruined our soils and robbed them of their fertility in order that the ex-

exploiters could gain the highest immediate return without putting anything back on the land. We have mined coal, iron and other minerals with criminal losses due to the greed of the exploiters; we would mine the best because there was the greatest profit at once, even though it meant the permanent loss of the less productive veins; we have permitted insect pests and diseases of plants and animals to take their toll of billions while the knowledge of prevention lies dormant; we have allowed a fire waste which is a disgrace to the nation because we have not compelled the application of extant knowledge and known practise to the art of building; we have allowed our farms and roadsides to fill with foul growth, a drain upon the soil and a hindrance to productive crops; we are wasting hundreds of millions of dollars through lack of education in the care of farm machinery; we waste other millions by the inability of our people to judge the value of their purchases in food, dress or furnishings; we waste one billion dollars through inefficient government; we lose billions through preventable diseases, and we bring untold loss, pain and misery to the thousands who are needlessly killed and maimed in our industries every year or who suffer from preventable diseases.

At the same time, while these direct losses occur year after year, we indirectly lose many more billions by failure to produce from the soil all that we

should and from industry all that it is capable of in material things and human happiness. During 1914 this country produced nine billion dollars' worth of farm crops. Under intelligent treatment there is no reason why, from the same soil, the amount should not have been twice as great. Millions are lost for lack of irrigation and other millions for lack of proper drainage.

On the side of consumption we are equally wasteful. Probably one-third of all expenditures for food, clothing and furnishings is an outright waste because of unsuitability or of ignorance in preparation. Uneconomic expenditures—those which bring no permanent good—are enormous. The annual expenditure for intoxicating beverages, tobacco, chewing gum, fancy candies, soda-water and other soft drinks, and all the other useless expenditures to which our people are accustomed, amount to more than four billion dollars. The use of such articles is, partially at least, a result of the failure of society through the schools to train in habits of thrift and wise expenditure.

The losses to this country from exporting raw materials to Europe to be sold back to us in the form of finished products of highly skilled workmanship, are perhaps our greatest economic losses. Mr. H. E. Miles, in a recent statement,¹ said: "We export cot-

¹*Hearing before United States Commission on Vocational Education*, Vol. 2, p. 270.

ton at fourteen cents a pound and buy it back in fine fabrics at forty dollars per pound; export steel at one and one-fourth cents and buy it back at from two dollars and a half to ten dollars per pound. We should make all these more artistic goods which we now import. There are one billion five hundred million consumers in the neutral markets of the world who buy crude stuffs from us in considerable amounts. They buy substantially all of their highly finished products from England, Germany and France."

It is commonly stated that Germany adds four times as much labor value to goods as this country. This country in 1909 manufactured goods to the value of twenty billion six hundred seventy-two million fifty-two thousand dollars, of which twelve billion one hundred forty-one million seven hundred ninety-one thousand dollars was represented by raw materials and eight billion five hundred thirty million two hundred sixty-one thousand dollars the value added by manufacture. With skill equal to that of the Germans, twenty-four billion dollars might have been added to our manufactured goods.

One of our greatest losses is in mining. Van Hise estimates² that for every ton of bituminous coal mined, a half ton is wasted and for every ton of anthracite coal mined, a ton to a ton and one-half is

² Van Hise, *The Conservation of Natural Resources in the United States*, pp. 17-47.

wasted. This he declares could be reduced to twenty-five per cent. and even to ten per cent. by a proper system of mining. According to his figures nearly four billion tons were wasted prior to 1907. He further estimates that fifty million dollars are lost every year by the manufacture of coke in beehive ovens instead of retorts. On top of this loss comes the enormous waste caused by improper combustion. This loss has been estimated as high as five hundred million dollars annually, and it is a wholly needless loss. Methods are known by which coal may be almost perfectly consumed. The amount wasted through ignorance of simple methods of furnace practise in the home or because of defective heating apparatus, is also a large factor in the waste of resources. Our smoke nuisance, with all of its attendant losses and discomforts, is a direct result of ignorance of simple furnace practise. Again the conversion of coal into heat and light through the steam engine gives only a small fraction, estimated at from one-fifth of one per cent. to one per cent. of the heat units of the coal.

These great wastes take place with a natural resource which is itself limited in quantity and is being rapidly consumed. The facts speak the importance of some action to prevent wanton waste of such a resource. Some results can be accomplished by direct regulation by law, but far more lasting results will come through education which will bring about

methods of safe and economical mining; a more efficient furnace practise extending to every householder who stokes a furnace; the development of the gas engine to take the place of the steam engine; the discovery and utilization of more efficient methods in the development of energy from coal; and finally the utilization of water power as a substitute for the heat energy of coal. Similar conclusions may be drawn in the case of iron, zinc, lead, petroleum and gas, all exhaustible resources which are being unduly wasted in mining and utilization, together with the loss of by-products such as arsenic and sulphur which are allowed to go to waste.

The questions which education must answer are: How can waste be prevented in mining and handling mine products? How can mine products be used with the greatest efficiency? What cheap substitutes may be used in place of the rare and exhaustible resources? These problems of conservation may be solved by an intelligent application of knowledge already widely and successfully applied, but information about these things must be generally diffused among the men who manage small as well as great enterprises and among the men who do the simpler tasks as well as those who manage the larger affairs. Education for efficiency all along the line is essential if conservation is to become something besides a name.

Turning now to forests and wood products we

find an equally enormous waste because of the lack of intelligent application of knowledge. Forests have been wantonly destroyed with no regard for the future of forest growth or of the preservation of the soil. Aside from the wholesale cutting of timber, a loss of fully twenty-five per cent. is sustained by careless and ignorant cutting, by destruction of young growth and by use of immature trees and lumber. Louis Margolin estimates that about fifty per cent. of the timber is wasted in milling, some of the items of loss being bark, thirteen per cent.; sawdust, thirteen and five-tenths per cent.; slabs, eight and seventy-nine hundredths per cent.; carelessness, three and five-tenths per cent.; necessities of standard lengths, one and seven-tenths per cent.³ Much of this waste could readily be prevented if attention were actively directed through educational means to the economic losses sustained and if men were trained efficiently to do their work.

In addition to these losses come even greater ones in the lack of intelligent utilization of wood products. The science of seasoning woods and of the use of preservatives is not applied extensively. Again, the lack of proper manufacture or of adaptation to use is responsible for the loss of hundreds of millions of feet of lumber, while the use of wood for cheap furniture made by automatic machinery

³ Louis Margolin, "Waste in Milling," *National Conservation Committee Report*, Vol. II, pp. 547-580.

and merely stuck together is one of the most shameful wastes since it falls most heavily on the poor who purchase it.

Finally, there is the waste of by-products such as tar, turpentine and wood alcohol. Taking all of these facts into consideration, the loss in the utilization of wood products far exceeds the amount which is utilized. Add to the losses about fifty million dollars annually from forest fires and the value of more than twenty-five billion feet of timber which might be saved if proper care were given, and the total positive and negative losses reach the enormous total of more than three billion dollars annually.

The soil is our most precious possession, developed as it has been by a process extending through a million years. To rob it of its properties or to allow it to be carried away by erosion is a crime against posterity. It is ignorance of the grossest kind when we permit soil destruction, for by the simplest methods both erosion and depletion can be prevented.

Proper selection and rotation of crops restore many of the elements to the soil; other elements are available in quantities to place upon the land; and others by utilizing the available fertilizers of the farm. Soil study for purposes of conservation is a scientific study of the best sort and brings rich material rewards.

Likewise the application of knowledge to the

problem of erosion brings practical results. By simple methods of water control, deep tillage, contour plowing, terrace building, forest retention and protection of fallow lands the greater part of the soil which is constantly being carried away, will be saved. The knowledge exists, but it is not generally diffused among those who should have it and employ it.

Turning to the enemies of the farm we find that insect pests alone in one year, according to an estimate of C. L. Marlott in the *Reports of the Conservation Commission*,⁴ caused a damage of fully six hundred and fifty million dollars, while the damage done by burrowing animals exceeded one hundred million dollars. The amount of damage caused by plant diseases has never been calculated. Mr. R. A. Moore, in a bulletin of the University of Wisconsin, estimated that the loss caused by smut in oats in Wisconsin alone was about four million five hundred thousand dollars annually. If this loss prevailed in other states in the same proportion the total loss from this disease in oats alone would be upward of fifty-four million dollars. This disease is easily preventable by soaking seed grain in formaldehyde solution. Yet how many farmers know this and how many know how to put their knowledge into practise? Other more persistent diseases are common such as rust, and all of the energies of the best scien-

⁴ Vol. III, pp. 301-309.

tific and practical minds should be bent on discovering how to prevent them and equally great energies should be spent in diffusing the knowledge among all men so that the knowledge may be put to work to play its part.

The loss from weeds reaches an estimated total of five hundred million dollars annually. Weeds are useless in that they contribute nothing to human welfare; are injurious in that they consume water and plant food; are noxious in that they choke useful plants and are malignant because by better constitutions and greater persistency they dispossess the ordinary cultivated plants.⁵

Our lands are overrun with all sorts of weeds and our highways are lanes of malignant growth which spread rapidly to the fields. Again, the application of knowledge already in existence will lessen if not prevent the ravages of these pests. Nearly every weed pest is preventable or eradicable, but the problem is to get the knowledge of how to do it into the service of every man on the farm.

Still continuing this catalog of losses from farm enemies we come to the loss from animal diseases which probably is in excess of five hundred million dollars. Much of this loss is preventable by existent knowledge. But such losses can not be controlled by knowledge in the possession of the few; they can be

⁵ U. S. Bureau of Soils, *Soil Erosion*, by W. J. McGee. Bulletin No. 71.

controlled only when practical knowledge of their prevention is universal among farmers.

Besides the positive losses in agriculture so far mentioned there is the enormous losses due to inefficiency in practise whereby we produce fourteen bushels of wheat per acre instead of thirty; thirty-four bushels of corn when it should be sixty to one hundred; ninety bushels of potatoes instead of two hundred, and other crops in proportion. The soils of European countries which have been cropped for a thousand years bear out the expectation that similar results should be expected on our almost virgin soil.

Important among the indirect losses which we suffer may be mentioned that from our failure properly to drain the land. Seventy-seven million acres of virgin soil of great richness could be added to our productive area by easily constructed systems of drainage and the wide-spread application of drainage to the farms. If the area which could be easily drained were drained it is estimated that two billion eight hundred forty-nine million dollars would be added to the wealth of the country, and, at ten dollars per acre, seven hundred seventy million dollars would be added annually to the nation's product. All this does not take account of the millions of acres which are improperly drained and which, in consequence, are producing only part of what they should. Fully one hundred and fifty million acres do not

produce within twenty per cent. of what they should because of insufficient drainage entailing a loss of two billion dollars. The results obtained in many states where marked beginnings have been made prove the economic results of drainage. Missouri alone has added ninety million dollars of taxable property to her lists in the last twenty years by drainage.

Too much importance can not be attached to education in this problem. Drainage is not a mere matter of knowledge for the drainage engineer. Comprehensive results can only be obtained when every acre of wet land receives the proper drainage and soil treatment. Every farmer having wet lands needs to have a practical working knowledge of the practise of drainage.

Thus far we have considered the tangible losses in material things—the waste of the visible natural resources. Prodigal as we have been with those, we have been still more prodigal in the waste of human beings and in the destruction of human resources. Man is held as our cheapest asset probably because his value can not be measured in dollars and cents. Money is voted freely by legislatures and congress to fight hog cholera, while almost in the same breath measures to protect human beings are voted down. Let us see what are some of the human losses.

Our most disastrous human loss is to be found in our waste of childhood. Hundreds of thou-

sands of children die in infancy each year through sheer lack of education in their care and other thousands grow up with weakened vitality and physical powers from the same cause. Little children are permitted to wear out their bodies and kill their souls in wearisome toil in the factories and sweatshops because we have not assumed complete charge of the guidance and protection of all youth until their physical powers are developed.

Professor Irving Fisher⁶ estimates that there are six hundred and thirty thousand preventable deaths every year representing an annual waste of one billion dollars. He further estimates that there are always three million persons in the United States on the sick list, about seven hundred and fifty thousand of whom are actually workers. The aggregate loss is about five hundred million dollars. Adding to this another five hundred million dollars as the expense of medicines and we have a total of one billion dollars, one-half of which is preventable. In this country from twenty-five thousand to thirty-five thousand men are killed and probably half a million injured in industrial accidents, while scarcely a school or college in the country is making any serious effort to train men to prevent accidents. Legislation is enacted to compel safety devices and men are not educated to use them. Industrial accidents are peculiarly due to lack of industrial education in sim-

⁶ *National Conservation Commission*, Vol. III, pp. 620-751.

ple accident prevention. Men can not be protected in industry unless they are taught to protect themselves. Although most industrial accidents are preventable their occurrence increases.

Diseases of occupation claim their toll outright by hundreds of thousands and leave their works of distress on weakened bodies of many hundreds of other thousands of workers. Yet until less than a half decade ago no serious study of causes and remedies was made and prevention was attempted only in the most aggravated cases, such as the effort made to prevent the manufacture of phosphorus matches—the breeder of the awful disease, “phossy jaw.” Even that was not finally prohibited until 1912. When the American Association for Labor Legislation called the first national conference on industrial diseases in June, 1910, it was possible to mention only one attempt to study occupational diseases and to note the completion of an investigation of only one industrial poison. That practically marked the extent of serious public interest in occupational diseases and the first conference attracted attention to this as to a new problem. Now we are beginning to realize the dangers in many occupations and our duty has been made clear. Men have a right to work in safe and healthful surroundings, yet legislative and administrative fiat can not secure wholesome conditions for all men unless all men are educated in the prevention of industrial accidents and disease. Un-

told millions have been wasted by industrial diseases and human pain and misery have been incalculable.

The principal causes of industrial diseases are fourfold. First, harmful substances such as metal poison, gases, fluids, dust, organic germs and irritants. For the reason that no method of prevention has been applied, thousands of workers take into their systems each day many of these harmful substances, causing both temporary and permanent losses. A second cause arises in harmful conditions of environment, such as excessive temperatures, humidity, air pressure and light. A third group comprises injuries due to occupational strain from excessive work, constant application and to the positions assumed while at work; the fourth cause arises from the effect of certain materials on special organs such as the eyes, ears, skin, nose and throat.

“The problem,” says Frederick L. Hoffman, “is one of ignorance rather than of neglect. Most of the factors which condition health and safety in industry are as yet very imperfectly understood, at least in the United States. We have not as yet learned in this country the function of the safety engineer. The function of the ventilating engineer in relation to industrial requirements is practically new and almost the same may be said of the illuminating engineer.”

To offset these causes requires universal education of the workers in self-protection and stringent

legislation to compel the best possible conditions under which to work.

More broadly must the question of bodily strength be studied and human life thereby safeguarded. The first duty of vocational education is to train in self-preservation. The worker of every grade should know the dangers which beset him and know how to offset them. Longer lives, more vigorous bodies and general efficiency result. There is plenty of room for improvement. The average length of life can be largely increased. Such increase has been taking place for the last century due to enlarging knowledge. What the length of life may become is merely a matter of conjecture, but if it reaches merely the average attained in Sweden of over fifty-two years, it will mean the adding of several years of productiveness to the whole people.

In broad vocational education will be found one of the chief methods of conserving health and lengthening life. A proper training for a life work carries with it a training in the conditions which affect the health and safety of the workers. Of fundamental importance is the training which analyzes the dangers to health, the occurrence of accidents, and teaches the methods of eliminating one and avoiding the other. But of almost equal importance is the education which teaches how to do things efficiently with the least amount of human effort. Many men put great effort in doing things which an intelligent ap-

plication of efficiency methods would make unnecessary. Human energy is thus wasted in useless things. The man with the shovel puts more effort into his work than he should because he is seldom taught how to use his strength to the best effect. He does not know the efficiency possibilities of the tools with which he works, and his shovel may be poorly adapted to the handling of the material upon which he is working. An adjustment of the size of the tool to the character of materials handled is the first principle of efficiency in this field, and every man who works should be taught that principle and how to apply it in varied practise. Of equal importance is the condition in which tools are kept. Strength is wasted in trying to work with dull saws, chisels, shovels or hoes, yet few men are trained to overcome their difficulties even of the simplest character and work on without knowing the cause of small accomplishments from hard labor.

The science of position while at work has become such an important matter to the health and strength of workers that the recently formed American Posture League is devoting its entire energies to a study of the effects of the position assumed by workers while working, looking toward the end of training for health, safety and efficiency.

The problem of vocational education as it relates to conservation, should comprehend the broadest efforts for human welfare. All of our efforts to pro-

duce more and to conserve the fruits of production should be directed to the one end of human happiness and the distribution of well-being to the broadest extent. In order that production may rise through efficient methods, waste be prevented, human effort be made to produce the most with the least energy, and the widest distribution of the fruits of production be possible, there will need to be universal education of all people in every walk of life in order that they may produce more, conserve more and enjoy more.

CHAPTER IX

PREVOCATIONAL TRAINING

Elementary education most important—Acquiring tools of knowledge—Education should function in daily life—Child who does not keep up is not abnormal, only different—Correlation of studies—Elements of more things should be utilized—Practical arts should be compulsory to all—Wasted years from fourteen to sixteen—Prevocational courses to fill the gap—Not only vocational but also guidance courses to be given.

THUS far in this volume we have tried to focus attention upon the needs of the masses of workers in useful employments, and to point out wherein society fails to meet them through the present educational system. We shall now attempt to set forth a scheme of education which will at least offer the opportunity to all individuals to adjust themselves to their environment and to make such readjustments as social and economic progress may require or individual ambition may seek.

The foundations of such a scheme are laid in the elementary schools and we shall first address ourselves to a discussion of the scope and purpose of elementary and prevocational education covering the period from six to sixteen years of age. It is generally accepted that this period of a child's life

should be directed to education of such a character as will put him in possession of the tools of knowledge, give him a sympathetic attitude toward his environment and develop sound habits of study and moral action. It is coming to be recognized that a fourth purpose should be added, namely, to give vocational direction. Compulsory education laws set aside the years from eight to fourteen for school work by compelling children to go to school during the time the school is in session. Having thus forcibly assumed the burden of the educational guidance of youth, it becomes a solemn obligation of the state to see that the education forced upon the child is of such a kind as will be suited to the welfare of each and every individual. Obviously it is unjust to force upon any one, old or young, an education unfitted to his capacity and unsuited to his needs, and from which he can not profit. Such education is neither individually nor socially efficient.

At present, a large proportion of youth leave school at or before fourteen years of age, and their further education ceases. Much of this defection is due to the failure of the school to reach the children in such a way as to make education function in their daily lives. "I hate school" is a common expression and unhappily the expression is translated into action about as soon as the law allows. A few who seem to have the power of learning the things of the book, are counted successful, are praised by their

teachers, advanced from grade to grade, and graduated finally amid the approval of their friends. To them, education has appealed, because they were successful. Whether it was real efficient education matters not. Probably in most cases it has functioned with the real life of the child no more snugly than it did with the life of the child who hated it, but it was more easily grasped as an abstraction. The child who left school along the way, humiliated or perhaps disgraced, may have had the potential power for splendid progress in a different course of study or under a more practical method of teaching. It should be emphasized that it is the duty of society to make its educational service a reality to all the children and not a sifting process by which the ones with particular powers are separated from the mass and are given advantages in their lines which are denied to others who have other powers.

In organizing the schools for the elementary period of education from six to fourteen, some definitely known facts must be kept in mind. First, that at present the great mass of children drop out of school at the earliest possible moment; second, that little effective service has been done by the school for these children to give power to protect themselves, to earn a living, to act the part of efficient citizens, or home-makers, or to appreciate the higher things of life; third, that these powers are less effectively imparted to those whom we are able to retain in school

to the higher grades than they should be; fourth, that the great mass of our youth will permanently earn their living with their hands and derive their appreciations from modest surroundings. These facts suggest the problem—How to keep the child in school until at least effective rudiments of a real education are imparted; how to give possession to every child of the tools of knowledge; how to make education function with the every-day life of all the children; and lastly, how so to organize our plan that while giving the elements of a real education to every one, the inspiration to the highest mental attainments of the few may not be weakened.

It is apparent that the first duty of the educational authorities is to analyze the causes for the abnormal defection from school in the early years. Something is decidedly wrong when such a condition exists. The main reason is not far to seek. It is found in the rigid course of study which takes little account of the different interests and aptitudes of the children and seeks to impose one set of "things of the mind." Each child responds to a particular motive for study and as nearly as possible that motive should be discovered and utilized. We see many examples of the enthusiasm with which those few students work whose motives for study coincide with the work of the school. We must give to all a similar enthusiasm by a wider utilization of motives.

Educators need to recognize that a child is not ab-

normal because he does not keep pace with the book education. Rather it is the child who does keep pace that is abnormal. As expressed by Arthur D. Dean :

“The child who can make his grades year by year without stumbling; who can successfully cover a course of study unrelated to his experience and apart from his environment; who can be trained by memorizing the other fellow’s doings, is after all a most unusual and even abnormal child. It is a natural heritage of the race to make things, to grow things, to live with living things. Contact with nature should be expressed in the educative process of all children. The progressive believes that the child who can go to school, study from books alone, shut his eyes to all but the printed page, and his ears to all but the voice of the teacher is as abnormal a creature as any of the freaks which we pay admission to see, and the worst of it is the better he does these things the more truly unusual and abnormal he is.”¹

In the elementary schools the first object should be to give possession of the tools of knowledge. Every child needs to learn to read, write, cipher and compose; not however, as ends in themselves, but as means to real education. These are fundamental vocational studies. They relate to the necessities of daily life. Progress can not be made without them and by some means or other, children must be kept

¹ Arthur D. Dean, *The Progressive Element in Education*. Address, Alfred University, 1913.

in school long enough to make these subjects a part of their very being.

The right handling of these subjects will prove one of the means of overcoming some of the indifference of children toward school. These subjects can all be so woven into the child's life that his interest will be quickened and instead of dead unmeaning sentences in reading, hard problems in figures, measured expression in writing or stereotyped composition, there will be a vivifying motive for study and an inspirational result. Throughout the years of the elementary school these studies, rightly conducted, give the child the life interest which he needs and a wide range of vocational knowledge. Through reading, the child can be put into harmonious relation with his surroundings. For this purpose, reading should be socialized. That which the child reads should be such as he can connect with his own experience. It should be less about kings, warriors, statesmen or politicians, and more about the simple processes of peaceful life and industry. Biography offers much for reading, but it should be treated in a broad way. The biography of simple virtue has in it as much of human interest as the biography of glamour. The biography of successful farmers, home-makers, mechanics, electricians, carpenters, and the inspiration of their rise should be given prominence. The biographies of great men ought to take account of their quiet virtues and

works. Washington and Jefferson as farmers or Franklin as an electrician are too often forgotten by their political biographers.

Reading, composition and arithmetic offer endless chances to make the school function with life. These subjects which are now formal and barren may be made rich with educational, vocational and civic interests. Through them the children may develop sound habits of thought and a sympathetic relation with their environment and wide vocational interests. Mathematics also furnishes the possibilities of a by-product in vocational and civic results, which are all too little utilized. Problems drawn from experiences with things will give a working knowledge about the farm, shop, or home, measurements of lands, composition of fertilizers or feeding stuff, and the many operations on the farm. These offer a field for practical application of mathematics which will give vocational direction and practical power. Likewise the working out of the designs in the shop or the problems of the home, offers a laboratory in which a practical meaning is furnished for every problem. Surely nothing is lost when these ends are attained.

As an instrument for the teaching of civics, mathematics is equally efficient. Let the teacher draw her problems from the administration of the town, township, county, city, state and nation and while

teaching the use of figures, actually teach the pupils to use them as they are used in every-day life. Let the pupils determine the assessment roll and tax rates, the cost of government and the balance sheet. Let them work out problems which daily trouble the public officials, thus making the lessons a review of current affairs. If this results only in some original thinking and discovery of new problems by the pupils, its chief end will be attained.

What has been said concerning reading and arithmetic applies equally to composition. The pupils ought to write about things which have for them a living interest. They should, therefore, find their subjects in their experience. Composition will have fewer terrors when the children tell in their own simple language about real things which they have seen and experienced, instead of trying to draw their subjects from the realms of fancy and their descriptions from other persons' mouths. Descriptions of animals, plants, implements and simple processes which they know about, promote originality and encourage clear thinking.

The period of the child's life here under discussion, being devoted to general education and being the only preparation for life which thousands of our youth will have, should cover the essentials which are necessary to bring the child into harmony with his environment by a general knowledge of the tools

by which further education may be acquired, and by acquainting the child with the data of his surroundings.

Throughout the period up to fourteen, the practical arts should be woven into the work of the school for two reasons: first, that through them the data of education may be more effectively grasped, and second, because complete education means education of all the faculties of body and mind. From mere play exercises in the early grades, this work should increase in definiteness until in the upper grades it becomes well organized in manual training, domestic science or agriculture. In all cases, however, practical arts should be utilized in the elementary school as a part of the general education of the young. They are not ends in themselves at this period, but rather means of developing the personality of the child; affording new means of expression; acquainting with every-day processes; promoting accuracy and a sounder notion of the dignity of work, and beginning vocational guidance. There will be, of course, a large by-product of vocational knowledge and skill developed, which may serve as the impetus for further training, but the emphasis should be upon it primarily as a factor in the complete education of youth.

Clearness of reasoning, and sanity of discussion will be promoted if this purpose of practical arts teaching for children under fourteen is kept steadily

in view. On the one hand, the violence with which certain people denounce practical studies will be tempered when their function as a means to general education is understood and, on the other hand, the criticism of those persons who look upon such work solely as a preparation for a vocation to fit children to earn a living will appear ridiculous. The failure to understand the true function of practical arts and properly to correlate manual training, domestic science and agricultural work with reading, writing, arithmetic and composition, has discredited these activities of the schools and left unrealized the possibilities of practical arts as an ally of efficient, general and prevocational education.

Practical arts studies, rightly conducted, vitalize the school work, infuse new desires and induce greater interest in other subjects. Such studies should therefore be compulsory. They are designed for all pupils no matter what their prospects in life may be. To some they will mean the arousing of vocational inclinations; to others they will mean a wider sympathy with their economic and social environment; for others they will serve as a "try-out" or vocational finding course. Whether a youth is to be a lawyer, physician or clergyman, or whether he is to go into the ranks of the factory or trade or farm workers, the practical arts can not fail to be helpful in his work. It will give as its best result a broader, more intelligent and sympathetic citizenship.

What may be accomplished by a correlation of practical arts with the formal studies of the school is limited only by the originality of the teacher and pupils. Problems in percentage, interest, profit and loss, and measurements are made real and attractive to children when drawn from the things actually constructed by them, while composition loses its terrors when children describe the familiar work of their own hands.

The extremely formal method of teaching which has generally prevailed is responsible for the narrowness of the educational curriculum. Subjects have been taught in compartments sealed tight to exclude a view of other subjects. Each is taught as an end in itself and not as a part of a coordinate whole, while the simplest elements of some vitally important subjects are entirely ignored. Processes in arithmetic which never will come within the range of a person's experience are diligently taught while the simplest elements of chemistry, biology and physics are never touched upon, although these elements correlate with every-day experiences, and offer a fund of educational data. Many subjects of elemental use to every person are themselves formalized and put into the curriculum in the same sealed compartment fashion, but usually at such a late period as to put them beyond the reach of the majority of youth who do not reach the advanced grades.

The problem of elementary education is to broaden

its scope while limiting its extent. The solution lies in a complete revamping of the courses, and a rewriting of text-books so that the elements of many things which the student should learn will be grouped around the fundamentals. The course need not be lengthened. In fact, there is no reason why the fundamentals may not be imparted in six years, thus ending the elementary period at twelve.

The Committee of the National Educational Association on *Economy of Time in Education*, declared strongly for a shorter course of elementary education and pointed the way to it.

"The committee agree that there is much waste in elementary education, and that the elementary period should be from six to twelve. Nearly all of our correspondents are emphatic regarding waste and the importance of shortening the entire period of general education. Saving of time can be made in the following ways:

"1. The principle of selection is first. Choose the most important subjects and the most important topics; make a distinction between first-rate facts and principles and tenth-rate; prune thoroughly, stick to the elements of a subject; do not try to teach everything that is good; confine the period of elementary education to mastering the tools of education. This does not prevent inspirational work, which is a demand on the skill of the teacher rather than on time. A great secret of education is to accomplish a maximum of training with a minimum of material. This is especially true of formal sub-

jects; it is true also of inspirational subjects in that after a general survey of the field, emphasis should be placed upon a few selected points. Under the conditions above enumerated, the formal elementary period can end in six years.

"2. Content subjects should not be taught with the methods suitable to the formal subjects; for instance, in the elementary period, literature, history and science should be inspirational; this does not mean presentation to pupils of amusing stuff. No doctrine has been more harmful than that one subject of study is as good as another and that all subjects should be taught alike; arithmetic is a tool and a discipline in absolute accuracy; literature, history, and elementary science in this period are for culture.

"3. Include the last two years of the elementary school in the period of secondary education and begin the study of foreign languages, elementary algebra, constructive geometry, elementary science, and history two years earlier."

At the end of the elementary course, at twelve or fourteen, the student comes to the parting of the ways. Up to this point all children follow the same general course. Now, individual inclinations and social forces lead the youth in different directions, and it is the plain duty of the schools to give the best that they are capable of giving to those who are compelled to follow one course as well as to those who elect to follow another. The fortunately circumstanced go to high school and enter upon a supplementary course of general training which may also

distinctly prepare for entrance into vocational schools of engineering, law or medicine. Ample provision is made for all who desire, and are able, to follow this course and also for those who go still further and take a college course as further general education or as a more thorough preparation for the study of a learned vocation.

The present problem is to give the same efficient prevocational education to the great mass of youth who quit school or who remain in the school, but who are indifferent to it. It is demonstrated by experience that the majority of the boys and girls leave school at fourteen, or before the completion of the grammar grades. Part of them go to work in factories, stores and workshops and at odd jobs; a part assist at home, and a part become mere idlers.

The work upon which the majority of youth enter at fourteen does not promise anything for future advancement. Mostly such work leads into blind alleys. The skilled trades do not take apprentices or helpers before sixteen and employers in progressive occupations do not want workers before that age. The years from fourteen to sixteen are wasted years in industry and, under present conditions, they are wasted years in school. They are worse than wasted if children are led into blind alleys in industry, or if they acquire slovenly habits of work in school through dislike of the school courses.

A new type of industrial school is needed to fill

the gap which now exists in our educational system. The new school must make its appeal to the millions of boys and girls from fourteen to sixteen years of age who do not take advantage of the academic high school. It must be open to all who can profit by it whether they have completed the eighth grade or the first grade. It must make its appeal by interest instead of by compulsion and it must therefore be closely related to the life of youth or their vocational inclinations. It will be adapted by necessity to the dominant interests of the community. Agriculture, trades, industries and business will be emphasized in their proper place. Home economics will be universal for girls, but adapted to the particular requirements of each community. Above all, the problems which confront every one as a consumer of goods or pleasures, will receive universal attention as a means of conservation of vital and material resources.

The industrial schools should not seek to teach a vocation in its entirety. Children under sixteen are too young for formal vocational training. The prime purpose in this period is to utilize the vocational interests for the purpose of broader education. But much vocational knowledge and skill should result, and principally such knowledge and skill as will intelligently guide youth away from unpromising, uneconomic employment, into permanent vocations which offer a satisfactory future.

CHAPTER X

THE PLACE OF THE VOCATIONAL SCHOOL

The place of the vocational school—Takes place of apprenticeship—Extent of vocational schools—Professional schools—Vocational schools for defectives and delinquents—Need for vocational schools for the great mass of workers—Requirements—Open to all who can profit by the instruction—To prepare all-round workers—Must be practical—Supply deficiencies of apprenticeships—Needs for many kinds of vocational schools—The heart of the vocational education system.

VOCATIONAL education has been defined as that kind of education the controlling purpose of which is to fit for profitable employment. An all-time vocational school is one which seeks to organize the body of principles and facts of any given trade, profession or calling and to impart them to the learner, together with skill in performance of the work required in the trade, profession or calling.

It is difficult to draw the line sharply between a school for general education and a school for vocational education because what might be general education to one person might be vocational preparation to another. Thus the ordinary college course is usually counted as general education, while to many it is a vocational preparation for teaching, public service, social service work and many un-

classified callings. Likewise, a high-school education, while general to nearly all of the students, is vocational to a small minority. Both in college and high school the same training may be to one person a preparation to enter a professional school, while to another it may be the preparation for actual work.

Broadly speaking, however, a vocational school is one whose distinct purpose is vocational preparation and whose courses are devoted, almost entirely, to subjects and training directly connected with that preparation.

The most highly developed forms of the vocational school are the medical and nurses' schools, law schools, theological seminaries, normals, dental schools, schools of pharmacy, veterinary science, engineering and architecture, and schools for the training of machinists, carpenters and electricians.

The evolution of these schools follows a similar course. Training for each of these vocations was at first by the apprenticeship system. Typical of the development is that of the medical colleges. Medical education in this country "began and for many years continued to exist as a supplement to the apprenticeship system still in vogue during the seventeenth and eighteenth centuries. The likely youth of that period destined to a medical career was at an early age indentured to some reputable practitioner, to whom his services were successively

menial, pharmaceutical and professional; he ran his master's errands, washed the bottles, mixed the drugs, spread the plasters and finally, as the stipulated term drew toward its close, actually took part in the daily practise of his preceptor—bleeding his patients, pulling their teeth and obeying a hurried summons in the night. The quality of the training varied within large limits with the capacity and conscientiousness of the master.”¹

Likewise in law, the prevailing method of instruction up to recently was the practical training of young law students in the office of a practising attorney, where the students did the menial and simpler tasks of the office in return for the instruction and guidance of the attorney.

Dentistry, engineering, pharmacy, architecture, were all taught in the same way. But successively as the body of knowledge available for each of these vocations increased in quantity and complexity and the responsibilities of the practitioners became heavier, something further was needed to supplement the apprenticeship training.

The movement for the building up of vocational schools was accelerated also by the rising standards of all vocations touching the public health, comfort and safety. Licenses to practise, based upon proved qualifications, made necessary a broader knowledge,

¹ *Medical Education in the United States*, Bulletin No. 4, p. 3. Carnegie Foundation for the Advancement of Teaching.

and that knowledge could not be acquired with certainty except by organized courses of instruction. The vocational school has therefore in many callings almost entirely replaced the older system of training.

In 1912-13 there were in the United States one hundred and seventy-nine theological seminaries, with ten thousand nine hundred and sixty-five students; one hundred and twenty-four law schools, with twenty thousand eight hundred and seventy-eight students; one hundred and four medical schools, with seventeen thousand and twenty-one students; forty-eight dental schools, with eight thousand one hundred and fifteen students; seventy-five schools of pharmacy, with six thousand one hundred and sixty-five students; one thousand and ninety-four training schools for nurses, with thirty-four thousand four hundred and seventeen students; twenty-two veterinary colleges, with two thousand three hundred and twenty-four students; there were ninety-four thousand four hundred and fifty-five students in normal schools, while fully fifty thousand more were preparing for teaching in the regular college course and in the state universities alone over fifteen thousand were taking engineering and other technological courses. In most of these vocations at the present time few, if any, persons enter except through the preparation of the vocational schools, and the place of the school is permanently fixed.

One by one these vocational schools have been developed and the movement is rapidly extending to provide means of vocational preparation in the many fields in which men labor. In much of this development the incentive of public protection against incompetence in matters closely affecting safety, health and convenience has been uppermost. That same incentive will extend vocational education still more widely, for it is a matter of public protection to see that the electrician is competent to wire a house, or the plumber to install sanitary fixtures, or the engineer to safeguard the lives and property in his keeping. Hundreds of instances might be cited to show the dependence of the public upon the quality of work of men in all kinds of skilled occupation. The incompetent bricklayer or carpenter may leave defects which will prove dangerous; the grocer who does not know his business may endanger lives by unsanitary products, and the janitor holds a direct relation to the safety and comfort of his employer or the latter's tenants.

Even where the relation to health and safety is not direct there is a demand for competence to conserve resources by the prevention of waste and the full utilization of all material for their best purposes.

The development of vocational instruction has been uniformly the same. At first, training was by means of apprenticeship, then the school came to

supplement apprenticeship, and finally it superseded the apprenticeship system entirely. The present tendency is to combine the two by supplementing the vocational school with a well-regulated apprenticeship after the completion of the formal or foundation courses.

Another development of vocational schools should be noted. At the farthest extreme from professional schools, vocational preparation has been developed for defectives, delinquents and dependents. Simple trades and occupations are taught to the blind, deaf and dumb, the feeble-minded and to the delinquent boys and girls in industrial schools and to men and women in reformatories. Excellent results have been obtained from this training and the object lesson is impressive. Here is proof that even in the simplest work instruction may be so organized as to train a mentally weak and abnormal person to do certain definite things with profit to himself and the state and the joy of accomplishment.

Between the extremes of professional preparation on the one hand and the vocational training of defectives and delinquents on the other, stands the need of training the great body of men and women who toil for a living. It is of these that the federal commission on vocational education said not one in a hundred is properly trained for the work he is doing.

Beginnings have been made and at least enough

has been done to enable us to determine the ramifications of the problem.

In 1913 there were in the United States more than three hundred and fifty thousand students in commercial courses in public and private schools. This represented a fair proportion of those who were preparing for employment in stenography, book-keeping and office work. The larger part of these students were being prepared in private commercial schools operated for profit, with the educational features in the background. The barest elements are offered and no pretense of a real broad vocational training in commercial work is made. Such training amounts to a preparation to begin simple work, but is not a means, however, of training for any large success in such vocations.

But on the side of productive work in the industrial world an insignificant percentage of the new recruits are prepared, even in the slightest degree, for the work they are undertaking. Trade schools are a rarity. While they are common enough to prove their efficacy, they do not yet train any considerable portion of the skilled workers in any city, and in many of the states they are wholly unknown. In a few of the highly skilled trades a number of trade schools can be found. Carpentry and the machine trades are taught in a large number of places scattered over the country. Here and there isolated schools are giving courses in specific call-

ings. Experience is available for teaching fully a hundred well-organized vocations, yet probably in the whole country not more than ten thousand boys and girls are being trained, while the annual draft of youth for the industries exceeds a million and a half.

This cursory review of the extent of schools designed to fit persons for profitable employment will serve to determine more definitely the purpose of such schools. One thing is evident, that vocational schools may successfully train men and women for simple callings, skilled trades or the most exacting professions.

The period of experiment has passed in training for some vocations and is passing in others. The universal success of such schools impels the confident expectation that they will be successful in any vocation which is dependent upon a body of knowledge and skill capable of organization and application.

Let us now examine more closely the basic ideas of schools organized for the purpose of vocational preparation.

1. The first consideration is that the students shall be able to profit by the instruction offered. This means that they shall be old enough to engage profitably in the work of the vocation for which they are trained and that they shall have definitely decided to follow that vocation. It means also that

they ought to be reasonably adapted to the work they will be required to do. It is a waste of time to try to train a clumsy slow-thinking boy to be a stenographer or telegrapher, or a man who can not master mathematics to be an electrical engineer.

The earliest age at which the simplest vocational schools should be open is about sixteen, and entrance into vocational schools for the more complex callings should be based upon the amount of preliminary training needed for the successful study of the vocation. This will vary greatly, rising in such professions as medicine to a college preparation.

There are two considerations which argue for the sixteen-year age requirement. The period up to that age is the time for general education. Children need to test themselves out. No child could intelligently choose to prepare for a vocation before that age and any attempt to choose for him is wrong. Secondly, there are few callings for which vocational schools should be organized to prepare that can profitably use trained workers at a younger age than seventeen or eighteen. Most of the skilled trades fix the entrance age upon apprenticeship at sixteen, and that is the earliest accepted age at which preparation for such trades in schools should begin.

With such powerful reasons in favor of this minimum, it is clear, as heretofore pointed out, that the elementary schools should fill the period up to six-

teen. To do that will require the establishment of a new type of school for the "wasted years" between fourteen and sixteen for those who do not profit by the bookish high school. Probably the solution of this problem will be found in the general industrial preparatory courses which, while not training directly for a vocation, will lay the foundation for the study of different vocations and will give sound guidance in the choice of a vocation for which to prepare.

2. Vocational schools are designed to prepare all-round workers and not specialized automatons. It is because industry has failed to do this that the necessity for vocational schools arises. Under the apprentice system in profession and trade the apprentice was trained narrowly in the main to the specialty which the master knew. Broad training in the whole profession or trade was impossible except in those rare cases where the master knew his trade or profession thoroughly and had the teaching power to impart it to his pupil. Under modern machine production methods even the training which apprenticeship afforded can not be had. Workers are put at a single process and after they become proficient in it they are kept at it. "Manufacturers want men," said a prominent manufacturer at the Grand Rapids meeting of the National Society for the Promotion of Industrial Education,

“who are content to stay at one machine process after they have become proficient in it.”

The vocational school challenges that position and says that no man should be forced, for lack of the opportunity for training, to become a mere automaton. The school would therefore offer the chance to become skilful in as many operations as the ability of the worker will permit, and would give the opportunity for the full mastery to those who are capable to accomplish it. By so doing the school stands for the man by opening a way out of a blind alley, and it stands for industry by promoting greater industrial intelligence and adaptability. The vocational school also takes account of the supplementary knowledge needed to give a broad view of the vocation as a whole and its relation to society and also of the growth of science, art and invention which are constantly reshaping old processes of industry and adding new processes. Education in its true sense, as well as training for skill, is the end and aim of vocational schools in professions, trades and occupations.

3. Vocational schools are designed to train men and women to do definite things. They must therefore be practical. By their results men expect to earn their daily bread. The knowledge and skill which they give are put at once to the acid test of actual work. The young doctor, lawyer or pharma-

cist from the professional schools must handle actual cases, and life and property are dependent upon them. The carpenter, plumber, printer and machinist from the trade school go to work for wages, and their employment is dependent upon their ability to do the work of their trade satisfactorily. The farmer and housekeeper put their knowledge and skill to a concrete test and mistakes are costly.

To train workers to actual work the vocational school should have the equipment to enable its students to perform the work which they must do in their profession, trade or calling, and to perform it under as nearly trade conditions as possible. This requirement is the first essential of a vocational school.

To a degree that it is not met, the school produces theorists instead of skilled workers. Many have professed to see in this requirement the fatal weakness of vocational schools because of the expense of equipment, the difficulty of putting the work on a commercial basis and the problem of disposal of the product. Doubtless in many vocations these difficulties are very great, in some perhaps insurmountable, except by cooperation with shops, offices and industries, but these difficulties must be studied and overcome in the best manner possible. Professional and technical schools are being equipped with adequate laboratories and shops, trade schools are proving that such facilities may be provided in a

large number of trades, and cooperation between shop and school is opening a practicable and efficient means of doing actual work. All experience would suggest that these problems may be solved by carefully analyzing the processes of industry and by working out an harmonious relation of the work of the school and the shop.

4. The vocational school is intended to supply the deficiencies of the apprenticeship system. The breakdown of the latter creates the necessity for such a school. Because the apprentice in most trades, professions and callings does not receive the broad education which he needs for industrial efficiency and civic power, the vocational school is organized. It is not a rival institution. It does those things which apprenticeship is failing to do. Its purpose is to supply to workers that education which an ideal system of apprenticeship formerly gave, *i. e.*, thorough knowledge of the best practise, skill in performance of the work required, scientific insight into its processes, an understanding of its relation to society as a whole, and a capacity to grow with the growth of science, art and invention in the calling. The vocational school must therefore be thorough in its work. It must be so if it is to have an enduring effect in the advancement of science, skill and intelligence in any vocation. It must be thorough also if its graduates are to be respected among their craftsmen. Skilled workers in any vocation look

with just suspicions upon the "half-baked" worker, whether he is a quack in medicine, a pettifogger in law or a half-trained strikebreaker in a trade.

Protesting upon this point, the American Federation of Labor declared against "those schools operated for profit which advertise short cuts to the trades. They are turning out not even machine specialists, but are flooding the labor market with half-trained mechanics for the purpose of exploitation. There is a growing feeling which is gaining rapidly in strength that the human element must be recognized, and can not be so disregarded as to make the future workmen either inefficient or mere automatic machines. . . . We do insist that emphasis must be placed upon education rather than upon product. The youth must not be exploited in the name of education. There must be the minimum of product and a maximum of education. In short, during the period of education it ought to be 'construction for instruction rather than instruction for construction.'"²

5. Vocational schools should be established in as many vocations as possible in order to offset the present "vicious distribution of population" in the work of the world, resulting from giving special opportunities for training in a few vocations. Having accepted our duty to provide the means of train-

² *Report on Industrial Education*, p. 26.

ing for profitable employment in some vocations, we must accept the full burden of vocational training in as many of the fields of labor as conditions warrant. There is no reason for a school of electrical engineering which does not call for a school for electricians; there is no reason to provide a college of mechanical engineering and not a school for machinists; there is as much need for a school for sanitarians as for physicians. In fact, there is an even greater obligation upon the public to provide a universal system of vocational schools because private as well as public enterprise has, by supplying facilities in certain fields and not in others, promoted a "vicious distribution" of workers. The correction of this social aberration will not be made except by public action which shall seek to raise the humbler occupations in dignity beside their prouder sisters, by discovering all there is in each vocation of large human significance and by seeking to impart the requisite knowledge and skill in a broad educational program.

6. The vocational school is the core of the vocational education system. It will be in each vocation the nucleus from which will radiate educational activities designed to reach and benefit all the workers in the vocation through part-time courses, evening courses, extension work and effective reading. In itself it will not solve the vocational problem in many vocations for the reason that at best it will

directly educate only a small portion of the workers. But it will develop a body of knowledge of the vocation, a scientific approach to its problems and a method of effective teaching. It will supply the raw material for each vocation just as the schools of agriculture have supplied the science, art and teaching knowledge for the wide extension of agricultural data through winter schools, extension teaching, demonstration farms and informational bulletins, and it will be the means of preparing teachers who, where their knowledge shall have been reinforced by practical experience in actual work, will be the most powerful factors in the right guidance of vocational education.

CHAPTER XI

PART-TIME EDUCATION

Needs of youth who quit school—Schools must supply further education if workers are to progress—School has heretofore stopped at factory door—Continuation courses to help misfits—Trade extension courses to increase efficiency—Supplementary training requires correlation of study with the occupation—Analysis of occupations needed—Part-time education useful to adults—Evening schools—Courses need to be practical and definite.

ONE of the unsolved educational problems is to reach and promote the welfare of the great numbers of persons over fourteen years of age who leave the schools and enter upon employment before being properly educated for vocational work or civic efficiency. Elsewhere in this volume the facts are given concerning the defection of youth from school at or about fourteen years of age. It is unnecessary here to enlarge upon the reasons already given why children leave school. The bare fact remains that they do leave and that they are all too poorly qualified to take up the industrial burdens which they are assuming.

At present it is probably impossible to bring any large portion of these children back into the school, no matter how attractive the courses may be made. It is hard for such children to see the advantage of

foregoing the wage which they earn—however small—in order to seek personal efficiency through a return to the all-day school. Most young people must have experience and work to convince them of the need and value of vocational training. They must work long enough and under such conditions as to realize what their deficiency in education means. They are likely to see by experience and work that broader knowledge gives greater adaptability and insures steadier employment and more certain promotion. The “way out” becomes more definite than when viewed as an abstract problem before leaving the schools and being sobered by actual work.

Even when a system of education shall have been established more suited to the needs of all children, there will still be large numbers who will leave school from economic necessity or short-sightedness and enter into unskilled work having no outlook.

The vitalizing of elementary courses for children under fourteen, the establishment of vocational preparatory schools for children between fourteen and sixteen, and the organization of vocational schools for youth above sixteen will hold many children in school for a longer period and give to many a preparation for a life-work, but the real problem is to reach the boy or girl who, for any reason, has gone to work.

The place of the school is clear in this matter.

Industry as now organized does not and will not look after any considerable part of the youth who enter upon work every year in great throngs. If any further education is supplied to them, the schools must supply it. It must not be assumed, however, that no important obligation rests on the employer in behalf of the further education of his young employees. The benefits are partly his and the obligation should be in proportion to the benefits.

Industries are calling for more general industrial intelligence which will give greater adaptability, interest and precision in work and which will make the task of foremen and superintendents less difficult than it is with large numbers of workers who are mere automatons—a part of the machine on which they work. Progressive employers realize that they can not go on indefinitely drawing their skilled men, foremen and superintendents from outside the shop, from the schools, or from the ranks of the skilled workers of Europe; they know that the most substantial progress is to be made by a forward movement all along the line in their shops—by opening up the road along which each and every employee may travel toward the goal of greater skill and power. Thus what the state desires for the welfare of the individual and society, the industries need as a material asset.

To state the problem in this way is to suggest the obligations of each. When all purposes conspire to

one end, there should be little difficulty in fixing the responsibility of each. The scheme of part-time education recognizes the obligation of the state and of industry by providing for the necessary instruction and guidance through the agency of the school and by requiring that industry shall so adjust itself to the scheme that young workers shall be allowed the time from their daily employment to get the education necessary to themselves as workers and citizens.

Let us see the extent of the problem of educating young workers. In 1910 there were nearly five million boys and two and one-half million girls from ten to twenty years of age at work in factories, stores and workshops. A very large majority of these had less than a grammar-school education. An insignificant percentage are employed in such a way as to grow in vocational power. Confinement to single automatic processes has closed the door to a general knowledge of the whole process or business. Whatever of initiative they might naturally have possessed is being crushed out by monotonous toil.

The first duty of the state is to conserve its youth. Neglect of youth results in stunted manhood and womanhood, stunted offspring and deterioration of the race. The state must see to it that childhood's bill of rights is observed, and among these rights is the child's right to special protection during the time

he is expanding into his full powers. Every encouragement possible should be given to enable him to reach the highest degree of personal efficiency.

Education in its broadest sense is the duty which the state primarily owes to its youth—education for physical welfare, for vocational power, and for civic and moral intelligence. The schools constitute the state's only agency for this purpose.

If, then, the cold hard facts show that our youth are leaving school at an early age, without even the education deemed essential as a minimum for earning a living or for effective citizenship, and are entering upon occupations which lead into blind alleys, it becomes the plain duty of the state so to organize its courses of instruction as to encourage a longer attendance at school and to follow into the industries those who go to work, to protect them from the crushing power of modern industrialism and to guide them to industrial liberty through supplementary education and vocational training.

Instead of abandoning the child to his own caprices, the selfishness of parents and the greed of industry, the state should recognize its duty to care for the education and proper development of all youth who engage in industry as well as it now does for those who remain in school.¹

¹ A program of part-time education in industry has been laid down by Arthur D. Dean in the following sections:

1. That the education of young people is of public concern and that it consists of more than the training received in the

Heretofore the school has stopped at the factory and office door and abandoned the young who enter. In some cities and towns evening schools have been provided where tired teachers have taught tired students, in the vain delusion that such schools would supply the deficiencies of the young who work during the day. Such schools have offered opportunity of a meager sort, but only to the exceptionally strong. As a means of solving the problem of educating the boy and girl at work, the evening school has been an utter failure. It is a cure worse than

all-day school and consequently the school must assume a guardianship of its youth beyond the period of day schooling.

2. That the purpose of employment of children up to eighteen years of age is for the benefit of the child, forms a part of his educative process, and involves a consideration of the most important question of how far employment in occupations suitable to childhood can be made educative.

3. That no child is to go to work until he has reached a certain maturity, the degree of which is not to be fixed entirely by age limitations.

4. That no child is to go to work until he is physically fit to enter upon an occupational life.

5. That children are to work only in those occupations which have been approved after investigation by the state department of labor, a list of such occupations to be on file in the office of the local superintendent of schools.

6. That children are to work only in those local places of productive and distributive labor the physical and moral conditions of which have been favorably reported upon by the state labor department and the names of which are on file in the office of the local superintendent of schools.

7. That no child is to go to work until he has an employment certificate entitling him to work at a specific occupation for a specific employer. Every month the certificate is to be renewed or indorsed at the office of the superintendent of schools and due note to be taken relative to the change of process or occupation to which the child has been assigned.

8. That no child of normal health is to remain idle, for

the disease, when, on top of the wearisome toil of a day in a factory, the tired boy or girl comes to the evening school for further education.

The part-time school is needed for these young workers, whereby they may devote a part of their working day to instruction which will supplement their daily experience and give them the broader education upon which their future growth and advancement depend. This part-time education may be given in classes for a few hours each week, or by alternate days or weeks in the shop and school, or,

immediately after the child has ceased to be employed the employer is to notify the local school authorities and the child is to return to his proper grade in the regular schools or in special classes organized for such children.

9. That when a child goes to work he is to work the first year at profitable employment for not more than one-half of the time formerly provided for in the child-labor law; that the second year the child is to be employed not more than two-thirds of the time formerly provided for such employment; that in the third year the child is to be employed not more than three-fourths of the time formerly provided and that not until the child is eighteen is he to work in profitable employment for a full working day.

10. That a child is to spend in school the difference between the time when he would legally be at work if section 9 did not prevail and the time when he is at work after section 10 prevails.

11. That the school instruction for such young people is to have any one or a combination of any of the plans herein set forth. To wit: (a) that the school work is to continue along lines of general education; or, (b) that it is to give prevocational training which will assist the young worker in determining his vocational qualifications for a particular occupation; or, (c) that it is to give trade or occupational extension work in order that he may be more proficient in the occupation at which he is now engaged.

*Proceedings, Department of Attendance, N. E. A.
Cincinnati, Ohio, February, 1915, p. 47.*

in the case of seasonal occupations, a few weeks each year in the dull season.

Such classes may be organized with any time arrangement which will suit the convenience of the employer and employees best, the essential things being that such education shall be given during the daily employment and that the instruction shall be under public control and shall aim to accomplish two ends—the promotion of vocational efficiency and the development of civic intelligence.

Two types of training should be provided for youth in part-time classes. The first should aim to further the general education of youth who are in automatic employments or in blind-alley jobs, in order to enlarge their general knowledge and guide them into vocations suitable for permanent employment. This is the function of the “continuation school.” The second should aim to increase the vocational knowledge, in the line in which they are employed, of youth who have chosen a suitable vocation for a life-work. This is the function of “trade extension courses.”

The apprenticeship system formerly supplied the need of the young worker. In many cases the law required a certain amount of instruction to be given and the very nature of the industry gave opportunity for a broad knowledge of it. The apprentice could learn the whole trade from single individuals. To-day, if he learns the whole trade, he must get it

from many persons. The minute division of labor in most industries has made it more profitable to keep workers at single processes which can be learned in a few days. The opportunity is seldom offered within a factory for a broad knowledge of the whole trade or even of very many processes of the trade. Young men become discouraged and drift from place to place, hoping thereby to "steal a trade" by learning several processes from several shops, or they become discouraged and quit to take up anything that offers.

Under the apprenticeship system the youth worked with the master, often living as a member of the family. The master taught the apprentice all he knew of the art and mystery of the trade. The master was in a position to supplement the daily tasks of the boy with ready-at-hand principles and information. If the master knew the science and art of his craft, this was the ideal system of part-time education.

The same thing applied in the training of young doctors, lawyers, pharmacists, dentists and engineers. The young man studied beside the old practitioner. He did part of the work of his master and received constant advice and information of principles and practise. He had a ready source of information at hand. Again, if the master knew his profession, the youth received the ideal part-time education. Even to-day the idea is kept alive in the

medical profession by the usual practise of requiring a year in a hospital for medical students, and in the law by the association of young law students in the office of practising attorneys.

In earlier times education was crudely of a part-time character; that is, the boy on the farm and the girl in the home performed regular tasks before and after school and during vacations, and the elder children attended the schools in the winter or other season when they were free. This condition prevails largely in the rural communities to-day. It has often been extolled as the virtue of the "little red schoolhouse" that boys and girls who knew how to work and were not afraid of work were able to profit more intensively by the instruction offered in the school.

Doubtless the advantages came from the spirit of work which prevailed, although some may have accrued from the fact that school work did not cover a confusing range of studies. One thing is certain, namely, that the advantages were not secured by any coordination of the school work with daily life. The work of the farm or home was seldom, if ever, brought into the school and the schools taught subject-matter entirely foreign to the farm and home.

Part-time education as we know it to-day and by which we mean that the school studies shall supplement practical work, was almost unknown. Even

to-day the barest beginnings have been attempted here and there to make the schools relate, even in the remotest way, to work which the young people are performing in the home and on the farm. Whenever it has been attempted it has not been effectively coordinated so that each project at home shall receive its proper amount of supplementary education and so that each parcel of education may be carried to a good end. A new spirit and purpose have, however, taken hold of our rural education. We are learning the secret of successful rural education. That secret is found in the application of the principles of part-time education.

Probably in no field of work is there such a vast range of supplementary, scientific and practical knowledge as in the home and on the farm. Probably, too, no fields of work offer more monotonous toil than the home and farm if it is uninspired by power-giving knowledge. The results of the combination of knowledge and work relieve the monotony of the work and make effective the knowledge.

Elementary education in agriculture and domestic science, if properly organized, will perform some of the task of part-time education for young workers. By their means young people will be more closely brought into touch with their surroundings, and knowledge which they get will be vitalized.

It is important to remember, however, how necessary it is to extend the time of education beyond

ordinary school days. The young man going to work on the home farm at fourteen to sixteen needs especially to have the help of supplementary education if he is to develop into a broad-gauged, contented and progressive farmer. What he gains in the elementary schools will often be too general and not immediately applicable; what he learns in the part-time school in short winter courses or from the itinerant teacher should be that which he can put into immediate practise. New methods are constantly being applied and new discoveries of science made which he ought to apply to his work. The part-time school should be a source of the latest scientific and practical applications in agriculture. By coordination he gains a practical knowledge of chemistry, physics, drawing, mathematics, geology, botany and zoology. The way is opened up for limitless expansion of knowledge of a kind that the farmer can put into almost daily use.

Unfortunately, the schools have interested themselves very little in the future of their pupils after leaving school. Except for the occasional interest which teachers take in favored individuals, the school knows nothing of what happens to the thousands who leave along the way. Very few cities keep any adequate statistics which give the age or qualifications of those who leave. No facts are available as to where the pupils go on leaving and no attempt is made to determine, even for any con-

siderable group, what outlook they may have for advancement or how the school might cooperate in that advancement.

Part-time education takes into account all of these things. It implies a study of industry as related to the school and the school as related to industry. It implies also a study of the articulation of school and work in such a way that the children who have gone to work may receive that kind of instruction best suited to their advancement in the work in which they are engaged or to the training of those employed in "dead-end" jobs so that they may prepare for work suitable for adults, and it implies a constant cooperation with young and old who desire to progress and to keep pace with the new developments of science and art in their vocations.

Part-time education should be compulsory for children between fourteen and eighteen who have gone to work in order to take advantage of the knowledge which they have acquired in school and which they will forget after a brief time. The school must bridge the chasm from the school to the office or shop, the farm or home, and make the way as inviting as possible in order that a new spirit of self-education may be infused into the young which will carry them afterward into the evening schools, correspondence and extension courses and intelligent reading.

This view is supported by the well-known fact

that a large part—probably ninety per cent.—of all that the children learn is forgotten within a brief space after leaving school. When school courses are organized for purposeful and efficient teaching, the amount of this educational loss will be diminished. At present a very efficient system of part-time schools is needed to save as much as possible of the unassimilated knowledge poured into the minds by the cramming process of teaching.

What is here said concerning the need of part-time education for those who leave at an early age is applicable just as forcibly to those who leave in the higher grades. At no point is the school work articulated with the work of the world. The high-school graduate and the college graduate are just as far from harmonious relation with a job as are the industrial workers. Part-time education is needed for them in order to make efficient their knowledge by putting the useful part of it in working order and to keep them abreast with the state of science and art of their vocations.

Important as are the needs for part-time education all along the line, the most pressing needs are in industrial, home and farm work. Here millions of people work in productive industry. The prosperity of the country rests upon them. Let them be well trained, for we must expect much of them. The needs of professional workers have been somewhat supplied by all-time vocational schools—the indus-

trial workers scarcely at all. No appreciable effort has yet been made except in a dozen isolated cities to give part-time industrial work, and only in the short courses of agricultural colleges has there been any serious attempt to give part-time education for farmers. The idea has been applied in home-project work for young children in agriculture and domestic science, but not systematically for the practical training of farmers or home-makers and their continued guidance.

While the first end of education must always be the training of the immature youth, no opportunity should be lost to extend the advantages of knowledge to every person, young and old. Knowledge supplementary to the daily task of the worker may be supplied almost universally with great profit and inspiration. Some mature workers are in a position to profit by seasonal part-time schools. The farmer with free time on his hands in the winter will be in a position to profit by short courses in agriculture; the carpenter and plumber have off seasons when organized courses could be advantageously taken; likewise in many occupations there are dull seasons or parts of a day which could be utilized in supplying the deficiencies of the vocational knowledge of workers. For the larger number of mature workers, however, the evening school must be the sole reliance for regular educational courses. Here the opportunity is given to the strong ambitious

worker to extend his trade knowledge and thereby increase his efficiency and to keep up to date in his vocation without loss of time from his daily labor.

Although unsuited to the young, the evening school may be useful to the mature man who is seeking to overcome his deficiencies and to gain new power. But the courses must be extremely practical. There must be no lost motion, no attempt at general training, no deferring of concrete results, no effort at mental discipline. The fitting of definite units of knowledge into the operations of skill is the best result to be achieved by part-time education in evening schools for the more mature workers.

In all kinds of part-time education, whether in day or evening schools, which aim to extend trade or professional knowledge, there is a particular necessity that the courses be kept as definite as possible. The so-called "unit course," which seeks in a given set of lessons to impart a definite piece of knowledge or to develop a particular skill, should be adopted. Such a course has the advantage of giving tangible results in brief time. The worker profits immediately by it and is encouraged to take further courses. On the other hand, a course which leads to an ultimate goal and whose utility can not be immediately seen too often discourages the worker from any educational effort at all.

A program of part-time education should be as broad as the needs of the workers in all lines of use-

ful employment. It will require, therefore, a minute analysis of the possibilities of supplementary education in every profession, vocation, trade or calling in which men engage in order to determine the educational needs of the workers and the most practical way to meet them. It will, of course, make its earliest efforts where the need is greatest. At present that need is most acute among the millions who work with their hands in productive labor.

Four fields of great promise open up for part-time plans for the training of productive workers in day, evening and seasonal classes. First, the training for workers engaged in juvenile or specialized occupations which will enable them to gain favorable entrance into trades suitable to adults and through continuation schools to enlarge their civic intelligence. Second, the training of workers who have found a suitable trade or calling to enable them to improve themselves in efficiency in that trade or calling. By such training workers should be enabled to do their work more intelligently and skilfully and to understand its relation to the whole process and should gain such an understanding of the organization of industry that promotion and higher positions will be possible. Third, the training of the great numbers of girls engaged in automatic employments in practical household arts. Fourth, the training of men and women for personal efficiency in every-day duties outside their

profession, trade or calling. Such training might be called training for conservation. It should relate to the proper utilization of materials, of food and dress, the saving of fuel, the sanitation of one's person and habitation, the care of the sick and prevention of diseases, the making of gardens and lawns, and all the activities which go to make up the round of duties of the average person.

CHAPTER XII

EXTENSION AND CORRESPONDENCE WORK

The place of correspondence and extension work in the educational system—What has been accomplished—Private correspondence schools—Demonstration shops and laboratories necessary for concrete direction—Itinerant teachers—Three types of correspondence schools—Project system of instruction—Maintenance of centers of instruction—Personal assistance necessary—Special opportunities in business training by correspondence—The chamber of commerce—Centers for home training—Agricultural education by correspondence—The place of the university in correspondence and extension work.

THE purpose of the reorganization of the educational system along vocational lines has been stated repeatedly in this volume. Generally speaking, it is education for occupational and civic efficiency, not for an inconsiderable minority of the people, but approximately for one hundred per cent. of our citizens. Roughly speaking, it is divided into pre-vocational and vocational training. The former is to be realized by our present elementary schools after they have been shot through with localized motives and concrete subject-matter as a basis of instruction. The latter is to be realized chiefly by the vocational school—the commercial school for business, the trade school for industry, the agricul-

tural school for agriculture and the school of household science and management for the home, and by supplementary instruction and training for workers whose time for self-improvement is limited.

In the natural order of things there will still be young men and women who will proceed no further in regular attendance upon public schools than the age of fourteen or sixteen years. Some young men and women will be compelled to go to work at fourteen, fifteen or sixteen. That the education of these young men and women may go on, even after they have begun work, that they may increase their efficiency in the vineyard of life, instruction through continuation, part-time and evening schools is devised. But there will still be many young men and women who may not find it convenient to attend evening or continuation schools and others who live in sparsely settled regions remote from the centers of advanced educational progress, but who, however, would be able and eager to pursue their education by intelligent study at home. Part-time instruction, theoretically, will provide for the educational needs of young men from fourteen to eighteen who must work all or a part of the time. It really is not intended to do much for men and women past the age of eighteen. Here is an opportunity for education to reach innumerable learners, fired with native enthusiasm, moved by a high order of ambition and capable of more or less sustained effort. Corre-

spendence study has already become an important element in the continued education of mature workers, particularly in business and in the trades. So far the work has been performed largely by private agencies. Exception should be noted with regard to the extension divisions now being maintained by several state universities, notably those of the University of Wisconsin, begun in 1906; the University of Kansas, begun in 1909; University of Minnesota, begun in 1911, and Harvard University, now several years old. In agriculture several million mature workers are reached every year through the extension divisions of agricultural colleges, with their railroad specials, short courses, farmers' institutes and through the farm-bulletin service of the United States Department of Agriculture and the land-grant agricultural colleges. Various private agencies—the banks, the railroads and the manufactories of farm machinery—have made considerable progress in promoting better farming. Systematic training for the farm by correspondence study through public agency has scarcely been attempted.

The weakness of undertaking the education of mature workers through private correspondence schools is not difficult to find. Fundamentally, the weakness is that such schools are operated for profit rather than for service. Private agencies can not afford to experiment. Creditable as much of their work has been, they leave much undone for the very

reason that they must be self-sustaining. Moreover, such instruction lacks the directness which similar instruction through public agency might attain, simply because efficient education is not measured by the immediate cost of imparting instruction. In this case the results are not circumscribed by the service done in behalf of a single generation. From the public point of view, education is cumulative in its results and endures to remote periods and survives through many generations. We are, therefore, willing to tax posterity for education in the present and we rightfully proclaim the defects of correspondence study and extension work which fail to take cognizance of the future. In a sentence or two, private correspondence schools are doing their work as well as reasonably might be expected and thousands of young men have made notable progress under their direction. Merely because the public can bear greater burdens of expense in maintaining correspondence instruction, now comparatively inefficient because it lacks opportunity for practical demonstration in conjunction with theory, public agencies should take over this department of instruction.

Any form of education is subject to glaring failures which is undertaken at long range, particularly because of the ever-present tendency to teach young men and women "what they ought to know," rather than "what they want to learn." In fact, this ap-

pears to be one of the chief troubles of classical instruction. Merely because the public is to pay the bills, correspondence and extension work is subject to no such limitations as those which encompass the private school. The ideal system of correspondence instruction would include the maintenance of accessible demonstration shops, farms or laboratories to which the student might come for concrete direction. The private school can not maintain these centers because the cost is too great to be borne by individual students. Unless there is a delicately adjusted coordination between study and work, between school and shop, between lesson and task, instruction is to that extent a failure. The University of Wisconsin has overcome this patent handicap to extension study among the workers of that state by employing itinerant teachers who take up with the students directly and personally the matter of coordination between study and work. In the initial stages of instruction by this method the peripatetic teacher may be employed to good advantage. As the number of students increases about a given center, additional provision for direct contact with instructors and laboratories may be provided.

The suggestion made by the *Wisconsin Report on Industrial and Agricultural Training* in 1911 regarding the development of university extension work is peculiarly applicable to public correspondence and extension work generally. "There is a

parallel between *its* methods and work and those of the early church organizations. It was necessary at first to have some kind of missionary work, as perhaps some little local demand became evident. Then circuit riders were sent around; men who preached one Sunday in one little town and the next Sunday in another; the circuits grew smaller as time went on until churches were built, pastors secured and permanent organizations established in each town. The university extension work can follow the same method. When little centers are established, permanent buildings erected and permanent teachers secured, then the university extension work can be used as a sort of circuit-riding organization for still higher grades of work until the needs of the higher grades are supplied by permanent organizations." So with correspondence centers and so with extension work, whether the agency be the university or the nearest vocational school where residence study prevails.

Correspondence schools as now maintained are divided into three distinct types. First, there are a number of schools like the International Correspondence School at Scranton, Pennsylvania, which are privately endowed and privately maintained. This school, established in 1891, was organized for the purpose of "teaching employed persons the science of their trades or professions, preparing misplaced and dissatisfied people for congenial or

better paying work, giving young unemployed persons the training necessary to enable them to start at good salaries in chosen vocations." Others like it are the American School of Dress Making at Kansas City, the American School of Home Economics at Chicago, and the American School of Correspondence at Chicago. The Alexander Hamilton Institute of New York City is one of the most successful private correspondence schools. It undertakes to present by organized information courses, training for the higher reaches of business, for the managing and directing vocations. Its work should be helpful in formulating certain departments of public commercial education by correspondence. The Sheldon School of Salesmanship, a private institution of Chicago, Illinois, is doing notable work by correspondence. Thousands of men employed as salesmen have been able to get a new grip on their work after pursuing the course offered by this school. These are conspicuous examples of work being done by many institutions. Second, there are the correspondence courses maintained by large corporations for the benefit of their employees. The Union Pacific Railroad's Educational Bureau of Information is typical of this class. Its announced object is to assist employees to assume greater responsibilities, to increase the knowledge and efficiency of employees and to prepare prospective employees for service. The School of Railway

Signaling at Utica, New York, which has an advisory board of practical railroad signal engineers from fifteen different roads, has similar objects. In this class might be named the International Typographical Union Course of Instruction, which is one of the few successful attempts of an organized body of workmen to provide for the instruction of its members other than by apprenticeship. Also the practical aid given to organized carpenters through the medium of their publication, *The Carpenter*. The third type of education by correspondence is that maintained at public expense and carried on by several universities, as, for instance, the University of Wisconsin.

The financial success of private schools of correspondence, the wide-spread interest shown by the employees of private corporations for whom educational opportunities are opened, the increasing patronage of the university extension courses go to show the need for systematizing this form of instruction, of making out of it a real vital force in education. All goes to show, moreover, the importance of doing efficiently through public agency what is now done more or less inefficiently through private agency.

That correspondence study and extension work may fulfill their greatest purposes and ends, the *project* system of instruction must be substituted for the *course* system of instruction which begins in

the kindergarten and avowedly ends only after nineteen or twenty years of residence study—through the grades, the high school, the academic departments of the university and the professional school—but which, rather, begins nowhere and ends nowhere. The time is gone when men and women can wait twenty years to gather any of the economic fruits of education. Competition is too keen in all realms of endeavor. Results must approximate the immediate. Furthermore, the project system avoids the routine of an educational curriculum, which, we may believe, has stifled the ambitions of innumerable young men and women merely because their progress was defined and limited by the progress of a group. Boys and girls who are able to do a given piece of work in three years quite as well as the group can do it in four, should be permitted to finish in the shorter time. The time standard in education is wrong altogether, but it is exceptionally pernicious in correspondence work where progress is even more an individual matter than in the residence school.

If we accept as settled the pronouncement that correspondence study and extension instruction are devised generally for the mature worker over eighteen years of age, to fill the gap between part-time education and unregulated and unsystematized home reading, we may next address ourselves to a consideration of means and methods.

For industry, for business and for the home, the possibilities of training by correspondence are almost limitless. In each case the city is the natural unit of instruction. Correspondence departments may be maintained as adjuncts of the trade school, the commercial school, the agricultural school, the school for home education. There is certain to be a mutual advantage in this arrangement, since, for instance, the school will have just one more avenue of approach to the shop, and to actual life in industry, and correspondence instruction may enjoy the immediate fruits of whatever readjustments the trade school suggests. This form of instruction may, therefore, dovetail into the established vocational school system and the instruction itself serve the purpose of the continuation school. The beginnings of industrial education by correspondence may be confined to a few leading industries, as, for instance, one of the hand trades.

Suppose an industrial trade school in carpentry should undertake instruction by correspondence. It is to be assumed that the student not only knows first principles, but that in all likelihood he is equal in practise to the efficiency of the trade-school graduate; that he is already employed as a carpenter and earning wages as such. Without undertaking to lay out a course for such a student—a matter for the most expert carpenters—his instruction natu-

rally will begin where the vocational school leaves off.

The University of Kansas maintains a "vocational course" given by correspondence for apprentices and workers in the carpenter's trade that is suggestive. It consists altogether of one hundred and forty assignments—twenty each of shop mathematics, architectural drawing and architectural design, and ten each of free-hand and mechanical drawing, elements of graphic statics, materials of building construction, bookkeeping and accounting, cost keeping for contractors, and two optional studies—machine drafting and the law of contracts.

From the very nature of carpentry, so much a matter of expert handicraft, centers where personal assistance may be obtained and personal direction given, are necessary. The establishment of such centers falls within the province of the trade school for carpenters. They should be maintained as a department of the carpenters' trade school. Except in the cases of the largest cities, a single center would be adequate for each trade, even though more than one trade school were found necessary. It may be found expedient to establish temporary centers in industrial plants or on particular "jobs" where a considerable number of men pursuing their education by correspondence are employed. Peripatetic instructors may be employed to advantage

in these shifting centers, and it appears a very wise plan to have them visit men at work.

In business training by correspondence, the commercial high school has a splendid opportunity to bring together in the commercial centers the young men just beginning a business career and men who have already attained success and who have a practical knowledge of business science and practise. Here will be found mature workers who have the most elementary training for business, and instruction by correspondence is the only means by which they may be reached. Instruction by correspondence, therefore, will comprehend the entire program of the commercial high school rather than follow it, as in the case of industrial education by correspondence and the industrial trade school. The most practicable centers for commercial training will consist of the associations already organized for practically every business. Every state and many of the larger cities have separate associations made up of retail grocers, retail hardware dealers, lumber dealers, manufacturers, ice dealers, electric railway managers, florists, coal operators, coal dealers, dairymen, laundry owners, hotel keepers, etc. Certain information and training is common to or needed by every business. To this extent, the experiences of the members of all business men's associations may be drawn upon for practical helps in formulating correspondence work and maintaining

the maximum effectiveness at the center of instruction. As the chamber of commerce of the German city is the "godfather" of the German commercial school, so also must the chamber of commerce be the godfather of commercial education in America, including particularly the extension department. In many cases, men actively identified with the local chamber of commerce can be employed in directing capacities in education for business, both residence study and correspondence study. Perhaps education for business will always remain as a more altruistic factor in civic life than business itself but this is only natural since the business man is apt to be more altruistic in addressing young students than in addressing a customer.

In training for household science and management by correspondence, students may be brought into the vocational school centers as often as possible for practical tests of efficiency. The admirable work done in training for home management by one or two private correspondence schools suggests how much greater progress may be made if this training is supplemented by occasional personal lectures or conferences and by practical demonstration work, for instance, in the class-room of the continuation or evening school. In the country these centers may be maintained in connection with the agricultural high school and the work administered somewhat after the plan of instruction by agricultural agents

in the counties of many states. Whether the unit of instruction in household science and management by correspondence is the city, the single county, a group of counties or the state, is unimportant, except as the larger unit makes supplementary personal help more difficult. The territorial boundaries of the unit will depend upon the number of young women pursuing the work.

So many different systems of disseminating information about agriculture exist in the several states that a question arises in regard to the number of centers for education by correspondence. Agricultural education by correspondence is designed to reach these persons remote from great centers, both mature and immature, to whom the agricultural high school is inaccessible and who have reached the age in life when greater efficiency, if achieved at all, must be achieved by home study. On the whole, it would seem that the agricultural colleges which are engaged in pretentious extension work of other kinds are best equipped to make the beginnings in correspondence work. Through the corn clubs, canning clubs, potato clubs, agricultural and horticultural societies and breeders' associations, many of which are already fostered by the land-grant colleges, correspondence study can be materially aided. Then there are the corn and wheat specials, the demonstration farms, the research laboratories and the farmers' institutes,

worthy extension enterprises in themselves, which may be employed as centers for gathering in home students as well as those who are not enlisted for regular study. While some of these forms of extension work are designed and carried on especially for young men, it is not because older men are beyond the subject-matter of instruction, but because only young farmers can be induced to take an active interest.

The United States Department of Agriculture is doing a notable work in the publication of farm bulletins and in the gathering and distribution of information about crops. Much of this information, however, is badly prepared for the purpose it is to serve. Bulletins which specifically undertake to set forth the principles and practises of a given process too frequently fail because the language is vague in its meaning or capable of being understood only by those persons who already possess the given information and, therefore, have no use for the bulletin. Men who prepare these bulletins need to keep more closely in touch with actual farmers, and they need to understand the extent of ignorance about, say, pruning grapes when they begin to prepare a bulletin on this subject. Nevertheless, these bulletins are an invaluable aid to countless farmers and may be made up for greater service if rewritten by men in touch with active farmers through correspondence schools or part-time classes.

No serious fault may be found with extension work in business, agriculture and household science, except perhaps that in agriculture, extension work is left too often to men who are merely scientists, not farmers at all. There is always a danger in such instances that agricultural extension work will lapse into a routine of formal exercises and lose its practical significance. What farmers need is not so much information in regard to the management of the ideal farm, but information with regard to operating the farm as it is. The same applies to extension work in industry, business and the home.

There are apt to be serious duplications in correspondence and extension work unless the administration of it is carefully planned. At the present time, many of the universities are doing essentially all grades of work for agriculture, for industry, for business and for the home. As far as possible the centers of correspondence study should approach the homes of the students that they may be within reach geographically. For this reason, the vocational school of relatively secondary grade should assume charge wherever and whenever its organization will permit the administration of another department. But it may be several years before the system of trade, commercial, agricultural and home training schools will be sufficiently well organized to undertake a comprehensive educational program by correspondence and extension study, and until

that time the universities which have been first in the field may continue their work of secondary grade. Ultimately, they will have to confine their efforts in this particular to work of an advanced grade and by a system of intimate cooperation, act in an advisory capacity with educational centers of a lower grade. The university may also direct and guide the reading of thousands of young men and women remote from extension centers and thus connect up their home study with the opportunities available in near-by libraries. A great deal of the information collected by the federal bureaus and departments—the Department of Commerce, the Department of Labor, the Department of Agriculture and the Department of the Interior—is not available to the mass of the people who need the information, since the great mass of the people hardly know that it exists. Moreover, the information will have to be reorganized to suit the needs of the people who are to use it, rather than to satisfy the statisticians and scientists who prepare it. Herein the universities may perform an important function not only in behalf of correspondence and extension study but in behalf of the vocational school, by which it is needed quite as much as by centers for extension teaching.

For a great many years, it is important that no sustained effort be made to convert vocational education to a rigid system. Rather, its value during

the initial stages will consist somewhat in its elasticity—in its not being a system. In this respect, the university may serve a useful purpose as a scout to determine the needs of workers in many fields; to formulate the educational data required to meet the needs and to develop the centers from which it may be imparted.

CHAPTER XIII

THE LIBRARY AND THE WORKER

Part of the library in universal education—Printed matter is universal in scope—All classes should be served—Libraries weak on the vocational side—Useful arts departments successful—Branches in industrial and mercantile plants—Chicago's experience—The Marshall Field Store library—Practical value of correlated reading—Library for agriculture—Vocational guidance literature.

THE object of education is to fit men continuously to play their part in the world's work. By a process of formal schooling the child is instructed in the things which he should know before taking up life's work. If this education is properly adjusted to his needs the transition from the work of the school to the work of the world is easy. He is doing real work before leaving school, and it becomes merely a matter of emphasis whether the school or the world predominates. Gradually, the direct work with the school ceases and the pupil finds himself a full-sized unit in industry, agriculture, home or profession. He is trained to begin work, but must train himself for success and advancement.

Experience is the largest factor in his future education. If, however, the school has impressed upon him that education is a process of continuous growth

he will seek constantly to enrich his experience with all the knowledge he can get from whatever source. Some may pursue education further by means of part-time schools, night schools and correspondence, but many will not pursue formal courses of instruction at least for any great length of time.

The supplementary education which most men will get after leaving school must come from individual study of books and other printed matter. A collection of books is the university of most men. The public library, with a wisely selected collection of books, has within itself the potential power of being the postgraduate institution for every human being within its reach.

The school should aim to start the individual along the road and should graduate him into the public library, where many needs for his future self-education should be supplied.

The library is the "great school out of school." It is at present practically the only means of education for the people beyond school age. The world of print supplies the potential needs of almost every man. No matter what the subject, there is material printed upon it, and this material ought to be available for public use.

The last few years have seen a revolutionary change in the breadth of printed matter. Whereas, formerly, books were for the learned, now, they are equally for the learner. Whereas, formerly, they

supplied the needs of the professional man, now, they supply likewise the needs of the artisan, the farmer and the home-maker. Scarcely a profession or a trade or calling is followed which does not have its historical or technical literature. Print has expanded and is rapidly becoming universal in its usefulness.

The public library stands in a peculiarly advantageous position to become the universal university of men if it recognizes its social obligation and studies the needs of men in all walks of life, the industrial worker, the farmer, lawyer, doctor, home-maker, storekeeper and salesman.

Speaking of the work of the public library in vocational education, the report of the Indiana Commission on Industrial and Agricultural Education said:

"The public library has been efficient in meeting the demands made upon it, but it has not always been efficient in helping to shape the demands so that all people will be benefited. In response to the needs of club women and of the schools, the public library has developed those phases which will meet their demands. They have given ample attention to history, fiction, poetry, art and literature. No one doubts their efficient service in those fields. Again, in response to an evident and expressed need the library has brought business books to the service of business men. Likewise the doctor, lawyer, engineer, and other professional people have had their

wants satisfied where expressed. But the industrial worker has not been reached because he has not been in a position to know that the library can do anything for him. There is a traditional belief that the library is a repository for the humanities, that it is primarily a place where the work of the world is forgotten in the calm of intellectuality. To such a place the average man does not repair. It makes no appeal to him. There is no point of contact between it and his every-day life. Here is the library's opportunity. It must change the attitude of the industrial worker toward it by giving practical, every-day service. It can not wait until he comes to it, for not knowing, he will never come. It must go to him and show what it can do for him, not to interest him in a book of silly fiction, but to answer his trade questions in solving his daily problems. The library must first establish the connection, and the rest will follow as a case of practical certainty.

"How can this be done? The library must first be equipped with the materials useful to industrial workers—books and pamphlets descriptive of the industrial processes, biography of industrial leaders, trade publications, labor union organs, technical journals, catalogs and anything else which may interest the tradesman. These, of course, should be adapted to the particular locality. If it is a town where a single industry predominates, the literature of that industry should predominate. If it is a place of wide diversification of industry, the scope of the library should correspond. The material should fit the practical needs of the average workers. It is useless to place on the shelves exhaustive treatises on mechanical engineering for ordinary machinists. There is a mass of literature on the processes of

almost every trade, rich in inspiration and information if the library will only gather it and make it accessible."

The weakness of the library, as pointed out by the report, consists in its failure to provide literature of vocational worth. This is due partly to the want of demand for information, but largely to the lack of qualification on the part of the librarian. Librarians to a large degree are mere lovers of books. Such qualifications as they have are in the realm of literature, history and art. They have little technical or industrial knowledge and less sympathy with the industrial world. Few helps have been accorded them by guiding agencies. Library associations and state commissions give ample guidance for book selection in boys' and girls' stories, modern novels and in literature, art, history or social science, but provide slight guidance in the selection of books suitable for vocational workers.

From lack of knowledge and guidance the selection of books for trade workers, if made at all, is very generally unsuited to their needs. Thus one library announced that thereafter it would supply the workmen's needs. Then it proceeded to lodge upon the shelves ponderously technical books on mechanics and engineering which none but a professional engineer could read understandingly, much less use. The sponsors for the movement professed to be surprised that workmen did not flock to the

library, the scheme was abandoned and the library settled back to its former silent composure, and righteous contentment reigned again.

There is a mass of literature on the processes and history of almost every trade, rich in inspiration and information if the library will only gather it and make it accessible. Material useful to industrial workers, such as books and pamphlets descriptive of industrial processes, biographies of men who have made history in the industrial world, trade publications, labor union organs, technical journals, catalogs of industries, material on political and economic questions of public concern should be gathered. The problem first to determine is what kind of material is needed for information and inspiration to the possible patrons of the industrialized library. The material, of course, should be adapted to the particular locality. The literature of local trades and industries should predominate. If men are engaged in the manufacture of furniture, their trade interests will be centered in furniture and their trade questions will relate to furniture. Trade workers in jewelry will need for their use literature relating to jewelry. Thus, the Grand Rapids library specializes in furniture, while the library of Providence makes a specialty of books and magazines on jewelry.

Comparatively little is being done in the cities of this country to vocationalize the library. The expe-

rience of a few cities, however, gives proof of its efficiency. The useful arts departments and branches of Cincinnati, Chicago and Pittsburg are a constant source of help to the workers. Their quarters are crowded, not with pleasure- or curiosity-seekers, but with interested men who seek to learn more scientific facts about the trade in which they work or who come to solve some specific problem. From the industrial departments of public libraries there is given to every man a constant invitation to find a way "out and up" by a broader acquaintance with the science upon which his trade is founded.

The newest form of service and the most effective is the establishment of industrial branches of the public library in factories, stores and other establishments. By this method workers in particular occupations are more readily reached. The prime purpose of these branches is to furnish the facilities for vocational knowledge close to the potential demand. The trade worker may never find the way to the reading rooms of the public library, and if he does he may be bewildered with the mass of books, but he can not fail to find and utilize any well-selected trade literature placed where he must pass it daily. His use of the material may be little or much, but it is better than none at all. Some men are bound to establish the information-getting habit. Their efficiency is bound to be increased and their example would have its influence.

In the industrial branches of Chicago's public library there were circulated in the year ending in May, 1914, one hundred and sixty-eight thousand one hundred and ninety-two volumes. A very unusual proportion of these books represented serious effort at education or practical use on the part of the readers. Several of the concerns where these branches are located in Chicago employ their own librarian, who is in the largest sense a vocational specialist. These librarians study the fields of work in which the employees are engaged and try to make the books selected function with the job. They engage in special reference work for the heads of departments and the executives and bring from the world of print collected in the city's many libraries the material which will serve business purposes. Such a librarian is thus a connecting link between the man or woman on the job and the source of useful information.

The practical character of the work is reflected in the list of books borrowed from the public library for the use of employees. At the Marshall Field branch, which is conducted in cooperation with the store, the emphasis is laid upon material which supplies the needs of mercantile workers. Employees in this store borrowed during one month four thousand one hundred and eighty books, and among these books are such books of vocational worth as *The Story of Textiles*, *The Sheraton Period*, *Deco-*

rative Styles and Periods, Advertising as a Business, Furniture of Our Forefathers, Electricity Simplified, Ceramic Studies, Precious Stones, Book-keeping for Retailers, Magic of Dress, Porcelain, The Expert Waitress, Home Furnishings, Garden Planning, How to Live on Twenty-four Hours a Day and many others relating to the work of the retail store.

In all of the work of the industrial and commercial deposit stations in Chicago the concern where the branch is located supplies quarters and equipment. The public library supplies the books and provides research work on questions of business information or kindred topics.

No doubt much of the effort of the library to awaken serious study will be fruitless. Laziness, indifference and dense ignorance can not be readily overcome, but here and there the library will sow seed which will eventually grow into a harvest. There are infinite possibilities for a public library to be a working factor in serving the men in the ranks who do things as well as the men who think things.

The most effective kind of education is that which clenches theory with practise, making knowledge as such a living thing in the work of the day. The tradesman can learn more mathematics of his trade when he learns it in connection with his daily work than he can in weeks of unrelated theoretical study. Likewise the banker, clerk, salesman, bookkeeper,

lawyer or other business man can learn the broader aspects of his business when the theory is learned in connection with daily practise. Most men have not had the opportunity to take formal courses of study while working, and to many the only opportunity that can come will be through the service of the public library.

This service should not be limited merely to the industrial workers. All vocations are in need of correlated study and all can profit concretely through the agency of the library. The library is the focus of information. Its dragnet is out in all parts to gather practical knowledge for the use of artisans, lawyers, manufacturers, professors, doctors, business men, home-makers, in fact, every one with a mind capable of growth.

Efficiency requires knowledge and there is no royal road to knowledge. "No man has ever known too much about anything, and the only safe way is to bring to bear upon the minutest problems of the day all the concrete knowledge of the world. There are two sources of knowledge—men and books—and efficiency is linking up the two. Books alone without capable and expert interpretation are likely to lead one astray because words and sentences have no fixity of value."¹ But, continues the same author, "There never was a time when business men were writing more about business and giving out of

¹ St. Elmo Lewis in *Special Libraries*, May, 1913.

their experience a more competent interpretation of the real lessons of that experience than they are to-day."

The same may be said not only of business, but of every vocation and of every walk of life. Men are depending more upon the lessons of experience gained from print, and the corresponding duty and opportunity of the library is very great.

The opportunity of the library which serves a rural community is no less important. The difficulties here are enhanced by the isolation of the workers, but on the other hand much of the material of great practical value is available free of cost. If such a library did nothing more than acquaint its patrons with valuable studies of farm matters issued by the Department of Agriculture at Washington, the state experiment stations and agricultural colleges, it would perform one of the needed services of the time.

Vast stores of agricultural information of direct value to farmers are in print, but not in use. It needs the focusing process of a library and trained library workers to bring it to its proper application on the soil. The legislature of Texas had this in mind when in 1913 it provided for county libraries of agriculture wherever the people should so vote, the function of which would be to gather and be ready to furnish agricultural information to the farmers. The controlling features of these libraries, if rightly

established, would be to serve as a clearing house of information on practical subjects. The farmer wants to know how to fight an insect pest, or to prevent diseases of live stock, or to raise a particular crop and to safeguard it against disease; he wants to know about transportation and markets, legislation and public matters affecting his interests, and he is concerned about schools, roads and drainage. He can use a bureau of such information in practical fashion and the library should be in a position to supply it when he wants it. The newly-created county agents of agriculture in many states are the logical disseminators of such information, but they can not do it without a library to back them up.

The library as a vocational counselor and guide may be made of tremendous social power. Nothing so much needs to be provided as the enlightened guidance of youth when they are choosing a career. The work of a lifetime often depends upon mere accident. Vocations are chosen without proper understanding or knowledge. The schools are awakening, however, to their obligation in this respect, and this awakening means that the library must supply printed information covering the opportunities and obligations in the hundreds of vocations into which the young people go. The library must furnish the guidance for the vocational counselor in order that the broadest counsels shall prevail.

The world's literature is full of descriptive mate-

rial of professions, trades and callings. Recent literature teems with discussions of the work of different vocations, the wages possible in them, the outlook for advancement and the prospect as a life career. In cooperation with the schools this should be brought to bear upon the acute problem of youth—that of the choice of a life's work.

To summarize, then, the library is the principal source of instruction to practically all the adult workers. Practical literature to supply the needs of workers is in print and should be available to the workers, and the workers should be encouraged to see its advantages. Books should be adapted to the workers and function with the job in field, factory and office. Lastly, the library owes a social duty as a vocational guide and counselor.

CHAPTER XIV

VOCATIONAL GUIDANCE

Occupational divisions—Educational effort is centered on the few—Jefferson as a vocational counselor—New conditions demand highly specialized training—Doctor Parsons' precepts in the selection of a vocation—Psychological aspects of vocational selection—Vocational guidance and conservation—Futility of "compulsory education"—Purpose of vocational guidance—Economic loss from lack of trained workers—A wise choice of vocations is essential in a democracy—Protection of the child involves intimate acquaintance with conditions surrounding work—Aids to an industrial survey—Summary.

THERE are about one hundred and fifteen thousand lawyers in the United States, according to the 1910 census, about one hundred and fifty thousand physicians and surgeons, approximately one hundred and eighteen thousand clergymen and something near sixty thousand civil, mechanical, electrical and mining engineers. Then there are about five hundred and twenty-five thousand school-teachers, and the group of artists, sculptors, musicians, nurses and miscellaneous professional people, which, altogether, number about one and three-quarter million engaged in professional pursuits.

It is this million and three-quarters people who, under our present educational system, are receiving largely from the state and at public expense a voca-

tional education. They constitute less than five per cent. of the population over ten years of age engaged in gainful occupations. Moreover, they make up the bulk of that fraction of the population which receives, from the public school system, any considerable training for the occupation followed in after life. The training of school-teachers, except for those trained in normal schools and colleges, is not strictly vocational. Nor do all the lawyers receive their professional training in schools maintained by the state. Ministers are not educated vocationally at public expense. An accurate estimate would reduce considerably below five per cent. the working population trained for their vocations wholly or partially by the public school system.

There are nearly thirteen million farmers who receive little if any specific education for agriculture. The same is true of the ten million persons engaged in manufacturing and mechanical pursuits; of three and one-half million engaged in trade and two and one-half million engaged in transportation. Our educational system, as far as it is possessed of vocational aspects at all, is maintained for the training of less than five per cent. of the population, probably not more than three per cent. Farmers, industrial workers, commercial and transportation workers—constituting at least ninety-five per cent. of the population—derive little if any vocational benefit from public education. We are educating for their

life-calling a few lawyers, a few physicians, a part of our school-teachers and engineers, training them for professions already overcrowded and in which the chances of success diminish as young men are attracted to them for want of anything else for which the public school system offers equal preparation.

We are doing all this and permitting ninety-five per cent. to drift aimlessly, possessed of scant training and capable only of the lowest efficiency.

Under our present system boys and girls, if they are to choose a vocation for which education in the public schools is of definite value, must select one from the narrow and overcrowded field of the so-called cultural pursuits—law, medicine, engineering or pedagogy. The proponents of vocational education propose to broaden the curriculum so that young men who want to be farmers, mechanics, business managers or directors will find equal inducements for training in the curriculum. When the curriculum has been thus broadened, there will be possible a real choice of a vocation.

As a complement of the proposed system of vocational education a system of vocational guidance is advanced as a means to avert the chaotic distribution of the workers, the overcrowding of a few vocations and the social unrest occasioned by the inefficiency or enforced idleness of a great section of the population.

"The greatest evils of a populous society," said Jefferson,¹ "have ever appeared to me to spring from the vicious distribution of its members among the occupations called for. I have no doubt that those nations are essentially right which leave this to individual choice, as a better guide to an advantageous distribution than any other which could be devised. But when, by a blind concourse, particular occupations are ruinously overcharged, and others left in want of hands, the national authorities can do much toward restoring the equilibrium."

Jefferson considered a "*comfortable subsistence*"² as the first and most important end of a vocation. The movement for vocational guidance is founded, in part, upon the notion, which is gaining validity, that every man has a particular bent to a vocation which, if discovered and cultivated in a careful and painstaking process of education and training, will insure not only a "comfortable," but a happy subsistence as well.

"It is very certain that no man is fit for everything," said Lord Chesterfield to his son. "But it is almost as certain, too, that there is scarce any one who is not fit for something, which something nature plainly points out to him by giving him a tendency and propensity to it.

"Every man finds in himself, either from nature

¹Letter to David Williams, Washington edition, IV, p. 512; written from Washington in 1803.

²Thoughts on Lotteries, Washington edition, IX, p. 505; written from Monticello, 1826.

or education—for they are hard to distinguish—a peculiar bent and disposition to some particular character, and his struggling against it is the fruitless and endless labor of Sisyphus. Let him follow and cultivate that vocation; he will succeed in it and be considerable in one way at least; whereas if he departs from it he will at best be inconsiderable, probably ridiculous.”

Vocational guidance is a bit of new phraseology for a human institution that is very old. Pythagoras sought to lead his disciples into ways of the “perfect life,” an ideal based upon theological and metaphysical concepts of a world, every attribute of which yielded to mathematical formulæ. Xenophon’s teachings were meant to lead to a realization of the same ideal. Aristotle invented a state, the ideal of which was a citizenship based upon virtue. He described a complete system of education which he expected would produce a virtuous citizen. Farmers and mechanics were to be excluded from citizenship. In fact, Aristotle, while favoring instruction in “useful subjects,” thought “only those useful subjects ought to be taught which do not turn those learning them into craftsmen.”

It is a far call from the kind of vocational education proposed by Aristotle and the kind we are to-day proposing. In fact, we want a kind of vocational education that will turn a part of our people into craftsmen, only we want it to turn them into

efficient craftsmen. We are quite willing to take chances in the matter of producing a *virtuous* citizen if we can first make of the man a self-supporting, efficient workman. Our present notion is that the man must be an efficient workman before he can be a good citizen—an ideal quite as worthy as that of the virtuous citizen.

Present ideals in education do not at all square with the notions of Aristotle when he says:

“We ought to look upon every employment, art or study which contributes to render the bodies, souls or intellects of free men unfit for the uses and practises of virtue, as a craft. For this reason it is that we call all those arts which lower the condition of the body crafts, and extend the terms to the money-making trades, because they preoccupy and degrade the intelligence.”

Aristotle does not seem to have been wholly adverse to education for business, although he believed that business was only a means to leisure. “If we must have both” (education for business and education for leisure), said Aristotle, “we must; but leisure is preferable to business, and our final inquiry must be in what sort of employment we shall spend our leisure.” However incongruous this notion of the vocations seems to be, it falls within the category of vocational guidance and it will have to be conceded that Aristotle, in his own way, was a vocational counselor.

Nicholas Murray Butler has well expressed the basic conditions in society for which the whole program of vocational education is drawn up. He goes straight to the heart of this movement and presents the case as a comparatively recent development in our civilization, a program that has grown out of changed industrial and social conditions. In this he is quite correct.

"At one time," he says,⁸ "when life was simpler, when the home counted for more, when there was a great deal of very admirable training of a manual and industrial kind to be had from the ordinary arts of the home, of the farm and of the shop, much that was practically helpful was done for the boy. This was, let us say, twenty-five or thirty years ago. But under our modern conditions of huge city communities, of congested population and the highly specialized character of all industrial work, unless one knows some particular thing, he knows nothing. The situation which confronts the boy or the girl of fourteen who leaves the elementary school and is forced to begin to take hold of life somewhere and somehow, to help to provide for the family livelihood and sustenance, is difficult and sad in the extreme."

The present chaotic distribution of workers gave considerable impetus to the movement for a scientific scheme of vocational guidance. When it was

⁸ Address before the Commercial Club of Chicago, Dec. 14, 1912.

seen that young men who had left the public schools were unable to find any remunerative work they might do, any means of earning a substantial livelihood, occasional effort was put forth to seek out places into which they might fit. Vocational guidance in this stage was possessed of little more scientific approach than mere employment bureaus. A few young men, however, profited by this elementary form of vocational guidance. A few were enabled to find employment, who, otherwise, might have drifted from one inconsequential job to another.

Vocational guidance means far more than employment agencies for young men. It means, first, a complete survey of industry—of all vocations—to determine for what occupations the specific training of young men is warranted. It means, secondly, a thorough examination of the tendencies and inclinations of each individual to determine for what occupation he is best fitted.

The late Doctor Frank Parsons, who was director of the Vocation Bureau and Breadwinners' Institute of Boston, made the first modern experiments leading to the present movement for vocational guidance. Parsons laid down⁴ three broad factors in the choice of a vocation: (1) A clear understanding of yourself, your aptitudes, abilities, interests, ambitions,

⁴ *Choosing a Vocation*, p. 5.

resources, limitations and their causes; (2) a knowledge of the requirements and conditions of success, advantages and disadvantages, compensation, opportunities and prospects in different lines of work; (3) the true reasoning on the relations of these two groups of facts.

Parsons sought to collect all personal data obtainable; a self-analysis made up of answers to an imposing list of questionnaires, the individual's own choice of a vocation and an independent analysis by the vocational counselor of heredity, temperament, natural equipment, face and character, educational experience and dominant interests.

There was to be a classification of vocations and industries, showing the conditions of success in each, the apprenticeship systems in use, vocational schools accessible and employment agencies and opportunities.

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The third step in the work of the vocational counselor was to determine the exact relationship between the first group of facts and the second. Always there was a doubt as to whether all the facts in the first group had been gathered and therefore whether the conclusions of the vocational counselor were correct. Doctor Parsons' methods were too much reliant upon empirical processes, too much dependent upon the impressionistic to be exact, and it was at this point that appeal was made to experimental psychology.

"The problem," says Hugo Münsterberg,⁵ "accordingly has been handed over from the vocational counselors to the experimental psychologists, and it is certainly in the spirit of the modern tendency toward applied psychology that the psychological laboratories undertake the investigation and withdraw it from the dilettantic discussion of amateur psychologists or the mere impressionism of the school-teachers. Even those early beginnings indicate clearly that the goal can be reached only through exact, scientific, experimental research, and that the mere naive methods—for instance, the filling out of questionnaires which may be quite useful in the first approach—can not be sufficient for a real, persistent furtherance of economic life and of the masses who seek their vocations."

What Münsterberg says is all very true, except that there is no reason to wait until experimental psychologists have done their work before we undertake to use what facts we may gather by more or less empirical methods. Also, all the facts in the second group may be gathered now. In fact, many industries already have been surveyed by the vocational counselor or for his use. No exhaustive study of the psychological processes of industry has yet been made, but there is no doubt this will be found to be quite as important as a study of the psychological processes of the individual mind. Münsterberg himself says:⁶ "We must, indeed,

⁵ *Psychology and Industrial Efficiency*, p. 43.

⁶ *Ibid.*, p. 57.

insist on it that the interests of commerce and industry can be helped only when both sides, the vocational demands and the personal function, are examined with equal scientific thoroughness."

Münsterberg has conducted certain experiments to determine the fitness psychologically of the individual for electric railway, ship and telephone service. The importance of a proper selection of electric railway motormen is seen in an annual expenditure of thirteen per cent. of the gross receipts of some roads for damages due to avoidable accidents. His experiments resulted in the rejection of one-fourth of the applicants for positions as motormen. Reaction time tests have been used in selecting girls for the inspection of balls used in ball bearings. In one instance thirty-five girls were obtained by careful examination psychologically who were able to do the work formerly done by one hundred and twenty girls. In the same case accuracy was increased sixty-six per cent., the working day was decreased from ten and one-half to eight and one-half hours and the profits of the factory increased. Experiments are now being made to test the fitness of stenographers and typists, and preliminary work has been done for the psychological testing of chauffeurs, singers and marine officers. Recruits for the army, navy and marine corps and railroad employees have been subjected to examinations, closely approx-

imating the methods proposed for psychological tests of vocational fitness for many years.

There are nearly ten thousand separate and distinct occupations listed in the United States census reports, so that the work necessary to be done to determine what occupations warrant public school training and to establish tests for educational fitness seems monumental. As Ayres says:⁷ "It is true that only a part of the nine thousand three hundred and twenty-six gainful occupations are available to the children of any one locality. It is also true that the same sort of tests would undoubtedly serve for many different occupational examinations." The same writer cautions against another fallacy.

"We must remember," he says,⁸ "that we are using a false analogy when we refer to fitting square pegs into round holes in talking of vocational misfits, for people and positions are both plastic, not rigid, and much mutual change of form often takes place without injury to either person or position."

Vocational guidance is closely related in its inception to another movement—conservation of our resources. It seems a bit strange, perhaps, that a strictly materialistic impulse has furnished any impetus for the program of conserving the energies

⁷ Leonard P. Ayres, director of Division of Education, Russell Sage Foundation: *Psychological Tests in Vocational Guidance*, paper read before organization meeting of Vocational Guidance Association, Grand Rapids, 1913.

⁸ *Ibid.*

and talents of human workers, of directing them into the channels where they are best suited to go. Yet such is the case. Most humanizing movements, moreover, owe either their origin or their progress, or both, to materialistic impulses, to commercial motives.

We can scarcely wonder that the proposed scheme of scientific vocational guidance has found a ready response among all people, after we have marked the unwise choice of a vocation by numberless young men and women, temporarily infatuated with the traditions of a calling for which they were not at all adapted; the failure of the boy and girl, just out of the public schools, to find any lucrative vocation into which they will fit; the economic need of industry for employees who will fit efficiently into skilled work, and finally the limitless waste of ability from all these causes, due to untrained, undiscovered or misapplied energy.

Orthodox school men were among the first to discover the failure of the public school to hold the interest of the boy and girl until sufficiently mature to choose wisely a vocation. Accurate data show that not more than one in every ten who enter the elementary grades remain until the last year of the high-school course. Half the children drop out of school before finishing the eighth grade. The response to this discovery, feeble though it was, was a concession that a classical or so-called cultural

education does not meet the needs and dominant interest of nine out of ten boys and girls who leave before completing the high-school course of study.

Compulsory education came into vogue partly as a vain attempt to stem the tide of "withdrawals" from the schools. Severe regulations of child labor operated as a further check. Yet the futility of these makeshifts is apparent. Authorities may lead the boy and girl to the trough of an impracticable, uninteresting and obsolete curriculum, but even they can not make the boy and girl drink. Boys and girls want the water of life, but they want it fresh from a fountain that flows freely with the spirit of their own times.

The fact remains, therefore, that not one-third of the population proceeds far enough in our educational system to be able to see, much less understand, the diversity of educational opportunity open to them.

Some expect individual ambition to overcome the economic obstacles in a complex society, where a few boys are born very rich and a great multitude are born very poor, and where a very few emerge triumphantly in possession of the means to comfort and refined pleasure. The wide-spread distress, the "present class distinctions which already cleave society and wreck so many lives," the lack of wise leadership in an ever-spreading industrial crisis, are effective rejoinders to this sort of argument. Ambi-

tion is circumscribed by the vocational vision of the young man and young woman and vocational vision is limited by the territorial boundaries of a community all too small for the native talents of the individual. There are hundreds of lucrative and pleasant occupations, one of which a young man might be able to fill with rare personal pleasure and satisfactory profit, about which he may never hear at all, or if he does, not until it is too late in life to undertake that work.

"That handicap imposed by leaving school," said a writer in the *American Journal of Sociology*, "consists not merely of being deprived of a vantage-ground from which an appropriate vocational choice may be made, but also in the fact that such youth are almost certain to drift into inconsequential and totally uneducative tasks such as our society reserves as a heritage for the working boy."

It is the "inconsequential and totally uneducated tasks" which Nicholas Murray Butler calls "uneconomic employment" and which he traces to a lack of adaptation to remunerative and efficient labor.

"Uneconomic employment," he says,⁹ "is almost as great an evil in its way as unemployment. It is not so serious, doubtless, for the individual who is employed, even though wastefully and uneconomically; but it is almost as bad as unemployment for the

⁹ Address before the Commercial Club of Chicago, Dec. 14, 1912.

public as a whole, which in the one case will get no service at all from the individual who can not find a way to earn an economic reward, and in the other case is getting only a partial service for whatever economic reward is paid."

It is the purpose of scientific vocational guidance to find the one occupation the individual boy may perform with credit, even though it be beyond the horizon of the young man's vocational vision at the time when he must go to work.

Indiana has a new law which requires working certificates for children between fourteen and sixteen years of age for each position in which they are engaged. The report of the Indianapolis Department of Attendance for 1913-14 shows very clearly how far untrained boys and girls fail to obtain satisfactory work. During the year working certificates were issued to eight hundred and fifty-seven different boys and six hundred and fifty-three different girls—a total of one thousand five hundred and ten persons between fourteen and sixteen years of age who had to quit school to go to work. Of this number one hundred and fifty-two boys and one hundred and twenty-seven girls obtained two certificates during the year, indicating that they held two different jobs. Forty boys and twenty-eight girls obtained three certificates, or held three different jobs. Ten boys and three girls obtained four certificates. Two boys and one girl obtained five

each. Two boys received six certificates, and one boy, to quote a report made on part-time education, "had the distinction of getting seven different jobs for which he secured working certificates during the year."

Of the eight hundred and fifty-seven boys who quit school to go to work, twenty-nine were under the sixth grade, two hundred and sixty-five were in the sixth grade, two hundred and thirty-eight in the seventh grade, one hundred and thirty were in the eighth grade and one hundred and ninety-five were above the eighth grade. The Indiana law requires the equivalent of a fifth-grade education before a working certificate is granted, and hence the number quitting school before the sixth grade is very small.

The demand for trained workers in industry, business and agriculture is emphasized in other chapters. Likewise the great economic loss from lack of training, skill or native aptitude of the workers. Occupations and individuals both may be flexible, as Ayres says. Nevertheless, there is a significant waste of energy when individuals attempt to do work for which they are wholly unsuited by temperament, and this waste may be attributed to a lack of vocational guidance in our public schools.

It is impossible to compute or approximately to guess at the economic loss due to the unwise choice of vocations, to the aimless drifting of untrained

boys and girls, and the want of trained workers in all branches of industry.

It is not alone sufficient to establish a complete system of vocational education. We must also establish a proper relationship between vocational education and industry and between the learner and our revised and revitalized educational system. This may mean a complete reorganization of industry to meet such conditions as the state is determined to fix as entrance requirements for the worker. It certainly will mean radical departures in our curriculum. Perhaps it must be shot through with the idea that the life-career motive is to dominate everything. We may find it necessary to do considerable experimenting in the psychological laboratory, and the vocational counselor may be a somewhat expensive addition to the pay-roll of our public schools. We may find it necessary to make continuation and part-time schools universal. These schools may involve a strict supervision of certain industries by the state that "the child's future usefulness, not the present balance sheet, shall be the measure of the success of this guidance into vocations."

The vocational instincts of the child, it is now believed, may begin to be apparent at the age of twelve or fourteen, since a striking identity has been found between the occupational interests of certain children in the upper elementary grades and their occu-

pational interests in later years. It is reasonably certain that every child begins to develop vocational interests not later than adolescence, and, while these interests may not be permanent, they will serve as a proper basis of education so long as they are dominant.

Vocational guidance must not be a forced process. Nor does it consist merely in employment bureaus for young men and young women. To quote the report of the Bureau of Labor:¹⁰ "Vocational guidance does not mean selecting a pursuit for a child or finding a place for him. It means rather leading him and his parents to consider the matter themselves, study the child's taste and possibilities, to decide for what he is best fitted and to take definite steps toward securing for him the necessary preparation or training." Nicholas Murray Butler sets out the work of vocational preparation and guidance as "the problem of how to take this great mass of young people and to see to it that while they are beginning to learn life they shall learn it in some effective fashion, by making use of some talent, of some predisposition, taste, desire or need, in order that when they finally swing clear of the structure provided for their education and training they shall be able to stand up straight as self-supporting citizens and to do something and do it in a way that is economically worth while."

¹⁰ *Twenty-fifth Annual Report, 1910, p. 411.*

Obtaining work for the young worker may be a part of vocational guidance and may be carried on in connection with it. But this is only a limited phase of the wider effort. The vocational counselor who understands thoroughly the possibilities of a chosen vocation may instil in the young mind and heart a lasting passion for the vocation and an abiding love for everything that goes with it. No occupation chosen under the sanction of vocational guidance is without a wealth of inspirational material, without its peculiar idealism, which the vocational counselor must point out.

The problem of vocational guidance is quite as complex as the industrial and commercial society in which we live, an altogether different problem from that of another era, when population was largely static and the son automatically chose his father's occupation. Vocational guidance is now an indispensable department of public education because education is to be made, in spirit and letter, thoroughly democratic. As a consequence of vocational training, industry is to be shot through with democracy. Vocational guidance is to make of it an efficient democracy.

Frank M. Leavitt¹¹ has stated that whatever may be the purposes of vocational education, from the

¹¹ Frank M. Leavitt, Associate Professor of Industrial Education, University of Chicago; address before National Society for Promotion of Industrial Education, Seventh Annual Meeting, Grand Rapids, 1913; *Bulletin* 18, p. 122.

standpoint of vocational guidance, the state can have but one interest or one concern, and that is the welfare of the individual child. Vocational guidance demands that public educational agencies have at their disposal the career of the child from the age of, say, five to the age of eighteen, or better, twenty-one, years. It is a tremendous responsibility—the care of the child during the period of transition from school to work, yet one which vocational guidance as a conscious and positive factor in the new educational program can not well escape. It involves a *complete knowledge of the world's opportunities for service, the moral consequences of the school and work, an intimate acquaintance with conditions surrounding each occupation* and, more than all else, the social and civic conditions and consequences of work.

Vocational guidance must depend for its information and insight somewhat upon private voluntary associations and public agencies already in existence. The National Child Labor Committee has collected and tabulated important information showing the extent of child labor in every important industry, and for the purpose of conserving our human resources, the resources of our children, this information may be used in formulating the constructive program of the vocational guidance movement. In this connection the reports of the Census Bureau, the state departments of labor, the Department of Com-

merce and the factory inspection bureaus are invaluable.

“When the best possible adjustment shall have been attained between work and workmen,” says Doctor Ayres,¹² “each one will have his full opportunity to achieve at least something for common wealth and common weal. The tasks of the world will be better done and the workers will receive greater rewards, deeper joy, and fuller satisfaction in their doing.”

To sum up: An insignificant percentage of our working people receive scientific training for efficient service. Some professions are badly overcrowded because in them only has a scientific approach been developed. We have proposed a system of education for efficient service which we call vocational, a system founded on the native prepossession of the individual to a particular calling, with certain peculiar limitations we may call external. Those external limitations are the conditions patent to certain trades, industries or callings which make it inadvisable for young men to engage in them. At this point we are to have the cooperation of the vocational counselor, who is to assist young men in the choice of a life calling. From facts gleaned by surveys, the vocational counselor is to point out the vocational opportunities disclosed by surveys,

¹² Address before organization meeting of Vocational Guidance Association, Grand Rapids, 1913.

together with disadvantages and drawbacks. With the assistance of the vocational counselor and the sympathetic direction of parents and teacher, we shall be able to steer boys away from occupational blind alleys and into wholesome remunerative employments. Whatever the psychological laboratory can contribute to successful vocational guidance we shall also use. In the main, after having pointed out occupational limitations and opportunities, the young man will be left chiefly to a free choice. When the possibilities of this program have been fully realized, we shall have realized also the greatest possibilities of the conservation movement, the conservation of human energy and talents.

CHAPTER XV

TRAINING OF TEACHERS

Lack of trained teachers for vocational work—Need of practical experience—Experience in teaching and experience in life—Prejudice to be overcome—Wasted efforts from uneducated and inefficient teachers—Various plans for training teachers—The present public-school teacher is not equipped for instruction in agriculture, the skilled trades or household arts—Active business men may be drawn upon for teaching in commercial schools—Shortcomings of the rural teachers—Only one in five teachers is trained—How sociological surveys may widen the vision of the untrained teacher—Summer schools, correspondence schools and extension work as supplemental aids.

IF IT is admitted that vocational education is to be undertaken as a definite concrete program for the future, then administrators must look naturally to means and methods. There is the question of dual or unit control of our present so-called liberal scheme and the proposed occupational scheme, which we consider a matter dependent largely upon local conditions and therefore not fundamental, and with which we do not here deal, except to say that whatever the faults or failures of liberal education, it ought not to fail wholly as a source of ideals for the new model. There are the problems of occupational surveys, of subject-matter and text-books which may be dealt with intelligently and wisely, if

only we are able to enlist capable teachers, men and women fired with enthusiasm, surcharged with technical information and endowed with native prepossessions for imparting information.

"There is great danger," as Charles A. Prosser says,¹ "that our enthusiasm for vocational schools will lead us to establish them faster than we are able to secure teachers possessing not only the academic and technical education, but also the practical experience necessary in order to carry on the work successfully. There is danger that in some quarters, at least, the regular school men will attempt to deal with the educational needs of the wage-earner by the application of a philosophy of education through a traditional method and a time-honored course of study, when it is all too apparent to the practical man of affairs that in order to equip him to meet the demands of industry we must give the worker the skill and the knowledge which he can apply directly in his work; and when it is all too plain to those who know the worker best that in order to reach him with our training we must use his experience on the job as the means of teaching the applied mathematics, science, art technique and economics that will make him a better workman and a better citizen."

It should be recognized at the outset that the problem of obtaining teachers for the reorganized program in education divides itself into three separate and distinct problems—one is to obtain teach-

¹ *The Training of the Factory Worker Through Industrial Education*, p. 18.

ers for the prevocational schools; the second is to obtain teachers for the vocational schools proper and the third to obtain teachers for continuation, evening and part-time schools, extension courses and instruction by correspondence. It seems altogether possible for teachers trained under the system now generally extant, with some special study of aims, program and method of the occupational interests, granted a native sympathy for the work, to make the beginnings, at least, in the prevocational work. Experience will soon demonstrate how well they measure up to the new opportunity. As regards the vocational school proper, the problem is far more difficult. Here teachers must possess not only a high order of technical skill, but must know how to impart it. For industrial trade schools, teachers should be drawn from among the most highly skilled workers in the respective trades and difficulty is bound to be encountered in the difference between what skilled workers receive in following their trade and what their initial wages as teachers might be.

School administrators should know at the outset that the services of such workers as teachers are worth far more to society than they can possibly be worth to industry, whatever the wage may be. As far as possible the teachers in vocational schools of whatever kind, for industry, for business, for the home and for the farm, should be drawn from men and women of practical experience. Nor is it suf-

ficient that they merely shall have had practical experience at the beginnings of their careers as teachers. If trade teachers, they should be required to spend a portion of their time, at least every two or three years, in actual pursuit of the trade. The same requirement should be set up for teachers in commercial schools, agricultural schools and schools for instruction in home economics, household management and domestic science. Agricultural teachers ought to be farmers first and teachers afterward.

Teachers for continuation, evening and part-time schools, extension and correspondence courses, while requiring the very highest order of skill and technical knowledge should be more available since this work is already fairly well begun by various private and public agencies and for the further reason that teachers of part-time or extension courses need not abandon their private pursuits, but may approach the student for part-time or extension courses with problems that arise day by day in their own personal business. It must not be forgotten that part-time courses and extension courses especially are designed for workers who have had some practical experience and it is therefore imperative that teachers for this work be possessed of the very greatest practical skill and the broadest technical knowledge. Some of the well advertised directors of agricultural extension work are made to appear ludicrous when face to face with actual rather than imaginary farm

problems. Vocational extension work must not be discredited by dreamers. Some German states, Württemberg for example, refused to establish vocational schools at all until a sufficient corps of teachers had been prepared previously for the work.

Of course, vocational teachers need to be possessed at the outset with native intelligence of a high order, a good academic education and a pleasing personality. In fact, these qualities are demanded of all teachers. But vocational teachers must be especially experienced in the art, trade or occupation which they are engaged to teach. If they are industrial or agricultural teachers, they must be skilled in the latest processes and practises of the vocation and capable of commanding the respect of the men actively engaged. Not only this, but they must know enough to contribute to the solution of the unsolved problems of the industry, particularly if they are employed in the strictly vocational school or if engaged in extension work with mature persons of practical experience.

Until the boy has reached the fifth or sixth grade, his learning is comparatively routine. It consists in learning how to read, write and perform the simple operations in arithmetic. But arithmetic especially may be made practical from the first. Arithmetic may be made a matter of "object" teaching from the simplest to highest processes. After the boy has reached the fifth or sixth grade, his teacher is going

to determine with what spirit he later enters the vocation to which the community life will call him. After this age, it is highly important that the teacher know as much about all phases of life as it is possible to know.

Professional educators lay great stress upon *experience* in teaching. Experience is important, but what is needed as the complement of experience in teaching is *experience in life*; experience with all kinds of life; experience, if possible, with many vocations, and intimate friendships with people in all walks of life, the professional man, the railroad man, the factory worker, the social service worker, the trade union leader, the department store clerk, public officials, perhaps a few ward bosses in the city, writers and lecturers. It would be a splendid thing for a young man, especially if he is going to teach in the country, to know a few "down-and-outers," a hobo or two who have been made so by that side of city life which the first glamour does not reveal. It is unfortunate that geography must be taught by young men and women who have not journeyed beyond the confines of their native county or state, who have not beheld the grandeur of the mountain, the majesty of great rivers and limitless expanse of the sea. This is unfortunate, but less so than to charge the young man who can't drive a nail straight with teaching carpentry.

This is the experience that counts. It is the kind

of experience that would count most of all in our rural schools if it were possible to get teachers who possess it. Since we can not do that, or very near it, we shall have to depend upon training schools to impart the information and instil the sympathy. Very much, therefore, depends upon the kind of teachers who direct the activities of the teachers' training schools. They must be more than mere book worms, more than mere theorists, more than mere automations. And they will be all of these and nothing more unless they keep in constant personal touch with the social, political, religious and economic conditions of that part of the country for which they are training teachers. But it is not sufficient to say that rural school-teachers must be trained for effecting an adjustment to these conditions. They must be trained to direct the vocational instincts of country boys, to inspire them with an overpowering love for work, to impart definite practical knowledge for growing maximum crops, and doing everything that may be done on the farm in the very best way.

It is extremely doubtful whether the average teacher in the public schools is keenly in sympathy with vocational education and he must not be permitted to distort its purposes, even in the prevocational stage, by drawing upon subject-matter which has no relation to life. Upon teachers already employed in the public schools must fall the initial responsibility of giving prevocational instruction.

If they fail to measure up to the initial responsibility, they will have to look to the period of their tenure. Teachers who complain about vocational education do so principally because they may have something new to learn, a different point of view to acquire. They regard vocational education as a reflection against their ability, or their vision or their long and "successful" records as teachers and, so believing, are apt to oppose the movement or secretly resist its encroachments. Teachers who can see no more in the movement than an attack on time-honored principles and methods are not exceptional in their bristling attitude of self-defense. The movement has its origin outside the profession for the most part. Do not surgeons scorn the crusade of publicity against vivisection and lawyers resent the layman's attacks on the courts? Does the manager welcome suggestions by the "straphanger" as regards the operation of a street railway? Of course, many teachers complain. They are quite as human as surgeons or lawyers or street railway managers. But they have definite duties to perform under a reorganized and rejuvenated educational program and duties they can easily perform if they only determine to meet them fairly and honestly. Even though the burden may be additional, it is good for teachers and for the public schools that it be assumed. It ought to be done cheerfully.

When the teaching of agriculture first was at-

tempted in this country, instruction was left to teachers who had no special fitness whatever for the work. Such efforts were worse than useless because the pupil's native interest in agriculture was in danger of being neutralized by ignorant and inefficient instruction. Agriculture is a subject which demands rather wide technical knowledge of the teacher in the vocational school proper as well as native sympathy and practical experience, and it were better to postpone instruction indefinitely than to leave it to teachers whose only preparation is obtained from keeping a few pages ahead of the class, in a prescribed text-book. As a matter of fact, agricultural education in most public schools still remains inefficient and unscientific as compared to what it may become under competent teachers. Teachers who know nothing of the science of agriculture should be spared from any serious effort at instruction.

What is true of the teaching of agriculture is true of vocational education generally. Incompetent teachers will surely bring discredit upon the whole system if they are permitted to defile it, or distort it into the narrow channels of traditional methods used by the teacher of the so-called cultural subjects.

Two things are demanded of the teacher in the vocational school, part-time instruction and extension courses, and they should be required without ex-

ception by school officials whose duty it is to select teachers of vocational subjects. One is technical knowledge of the subject and the other is practical experience in using that technical knowledge. As a matter of choice, the practical farmer who has made a success of that calling is better equipped to teach agriculture than the boy or girl who is able only to make a passing grade on questions taken from a text-book that has been learned by rote. Likewise, the practical carpenter will be a more successful instructor in woodworking than the high-school graduate armed with all the books published on the subject.

There is no intention to underestimate the value of pedagogy in vocational education, especially in the vocational school. It is valuable except, as between method and practical experience, there can be no choice. The ideal teacher of vocational subjects is one who has had enough native interest to follow the vocation as a matter of choice and who has supplemented that practical experience with training provided for teachers of that subject.

For industrial trade schools and schools of household arts already created, there are teachers available to supply only a small percentage of the demand. Training schools need to get hold of competent journeymen who are best fitted for responsible positions. The wages must be made sufficiently remunerative to attract men who are already skilled

artisans, because they only are fitted to teach industrial processes, effectively.

The State Normal School at Albany, N. Y., maintains a night school for the training of trade teachers. After some experimenting, fifteen practical workmen were chosen for a night course for teacher training. The minimum requirement of practical experience was five years in addition to apprenticeship. Four trades, pattern making, cabinet making, metal working and machine work, were taught. The class met twice a week, on Tuesday and Thursday evenings, from seven to nine thirty o'clock. The course lasted forty weeks. Shop work, drawing, shop mathematics and the principles of teaching were taught. The school sought to show by example how to deal with immature and unskilled students and the candidates were required to assume the attitude of green apprentices and go over simple processes in the same manner as they would be presented to beginners. The professional work included the principles of teaching; the necessity of outlining and the principles of planning work; arrangement of the course of study and the use of equipment; the correlation between the different departments of the school; the price of materials; method in recitations and examinations; the use of records and efficiency cards and other practical details of the work.

The Federal Commission on Vocational Educa-

tion recognized fully the need of practical experience as the basis of preparation required of the vocational teacher. Section 12 of the bill pending in Congress prescribes how the several states may receive the benefits of the appropriation for training vocational teachers. These training courses must be approved by the state board, which in turn is accountable to the federal board. The bill provides that "such training shall be given only to persons who have had adequate vocational experience or contact in the line of work for which they are preparing themselves as teachers, supervisors, or directors, or who are acquiring such experience or contact as a part of their training."

The Federal Commission believed the problem of obtaining an adequate supply of vocational teachers "must be worked out by gradual experiment in part-time and evening classes which afford opportunities for persons who possess skill in their callings to acquire experience in the classroom and shop instruction while still continuing their regular employment." The Commission was not favorably impressed with the present normal-school facilities for training industrial teachers. "At the present time," said the Commission, "not a half dozen schools exist in the United States which afford an adequate opportunity to secure thoroughgoing preparation for the teaching of trade and industrial subjects." Yet there are more than three hundred colleges and uni-

versities in the country that maintain teachers' training departments.

"Our vocational schools," says David Snedden, ". . . must be taught by persons whose first qualification is to be found in their mastery of a craft and who have somewhere added to this same mastery the art of directing learners and of imparting knowledge. . . . Teachers of printing must first have been printers; of plumbing, plumbers; of farming, farmers; of jewelry design, jewelry workers; and so through the long list of vocations for which practical school training is now an admitted possibility."

The present public-school teacher is not fitted to teach the skilled trades and household arts to girls, generally because she knows little of either. She knows nothing about trades and the life of the woman worker in a trade. She may know something about the processes of household arts without being really educated in the art, in which case she may train girls to be excellent cooks or clever seamstresses without imparting inspiration and love for the science of food preparation and the art of hand-made and home-made clothing. There is not much to be gained from the household economics which has no wider vision than palatable food and neat clothing, desirable as both are. In trade-school teaching for girls, the woman who has experience only is liable to have acquired prejudices on social, economic and industrial questions which wholly un-

fit her for the position of a teacher. It is better to avoid all such questions until such time as the student may sift opinions for herself. While the present public-school teacher is too much disposed to academic methods, the trade worker without preparation for teaching as a vocation is apt to be too little disposed to follow the processes of the learner's mind.

Teachers in girls' trade schools should be broad-minded, intelligent and experienced, but they should understand the principles of teaching. They should be familiar with the household arts, health and hygiene, academic and art education in the trade, business organization and shop management. They should be informed, without being possessed of violent prejudice, on social and industrial questions of interest to women workers in many industries. Practical teaching in practise schools will assist the young woman skilled in the trade to become an efficient teacher. Teachers should keep in constant touch with trade conditions and new processes whether their students be boys or girls.

In commercial education, the division of work logically leaves to the public-school teacher, whose education and training are remote from the needs of business, the duty of imparting prevocational instruction. While the present corps of teachers may fail woefully at the outset, a diligent effort to become acquainted with present-day needs of business

will enrich the life of the teacher and greatly relieve the monotonous routine in his daily program of instruction. It seems reasonable to believe that the public-school teacher may become efficient altogether in the preliminary training for business if only his point of view is changed.

There are probably less than twenty thousand teachers in the United States devoting all or a part of their time to commercial instruction in public and private schools. Most of the number have been poorly trained, yet they are mature men and women and it is impossible for them to quit teaching and complete their training. Upon this group, although deficient except in the mechanical processes of business, we must depend for our teachers during the beginnings of commercial education. This group of teachers and those who are to take their places may continue their training in summer schools and by correspondence study. Here again, as far as we are able to attract them, men of actual business experience must be induced, as a public duty, to give instruction in the commercial schools. In the city, business managers can be induced to give short lecture courses from which regularly employed teachers may learn quite as much as pupils.

As in industrial trade schools, as far as possible, commercial teachers should be drawn from men of actual experience—experience in the business world about them. They will be difficult to obtain, but they

will accomplish so much more. In the advanced work of commercial education, in the schools of university grade, and in continuation, part-time and extension courses, teachers must be men and women of the widest practical experience, else they can accomplish nothing. They will have nothing to interest mature students of more or less experience themselves.

“There has never been a time when there has seemed to be such a necessity for teachers in all kinds of schools to lay formalism aside, as now. Teachers so frequently feel that their position is not one of business, but a profession; not in the sense in which a profession is usually understood, but a fancied notion of it, which prevents them from entering into and becoming factors in the great business world. This results sometimes from a fear on the part of the teacher that his views will not please every one, and that he may not be able to hold his position. Better lose it than be a mere satellite. Teachers must be men and women of ideas, because the business world needs such. These, however, can not be obtained without broad culture. Teachers must be men and women who are not afraid to enter into the business interests and share the burdens of the community. They must be known as workers, not merely in the ‘teachers’ sense,’ but as energetic, enthusiastic forces thoroughly imbued with the idea that work, incessant work, is the price of success. ‘He who saves his life will lose it, and he who loses his life will save it.’ Teachers must constantly keep growing, because the business methods of ten years

ago are not the business methods of to-day, any more than the text-books of ten years ago are the text-books of to-day.”²

The training of rural teachers is in part a problem in itself. It is fraught with peculiarities to the rural community and can not be solved except by those who have a thorough understanding of and sympathy with conditions of life in the country. No statistics are available to show what percentage of boys in the country schools become farmers, but the percentage is large and it is agriculture that must determine the curriculum for the rural school. The exceptional boys in the country schools who have a bent for vocations in the city may be assigned outside work by teachers who recognize that bent and are able to direct it in proper channels.

The trouble with country teachers, even urban teachers for that matter, is that they do not understand life. It is doubtful whether a more sympathetic view of the possibilities of the farm can be acquired than by living for a while in the city. Thus, the ideal rural teacher would be a person sufficiently mature to have obtained from living in the city an accurate estimate of its sociological conditions. He would, therefore, be the more likely to understand the exceptional opportunities offered in these days for wholesome and happy life in the community

² H. B. Brown, President Valparaiso University.

where he teaches or else throw the weight of his influence and power into a localized movement to change conditions in the community.

There is no more unfortunate situation than is created by the young man in charge of the rural school and upon whom must rest the responsibility of prevocational instruction in agriculture, who has seen a little of the glamour of city life and has missed its seamy side and who arouses a spirit of discontent and longing for city life in the immature minds which he is molding. Country life has boundless possibilities and the rural teacher, somehow, must know what they are and be able to impart an understanding of them. If he is a young man, or woman, who has been reared in the neighborhood, he is far more likely to understand and appreciate at their full worth these possibilities if he has also been permitted to struggle against the current of competition in the city.

Rural schools have suffered from the tendency of the better teachers to seek employment in the cities, not only because these teachers were lost to the community where they were badly needed, but because they unconsciously left behind them that spirit of discontent with what the country has to offer and which is largely responsible for the unchecked movement of population from the country to the city.

There were about five hundred and twenty-three thousand public-school teachers in the United States

in 1912. The graduates of teacher-training courses in the colleges, universities, state normals, county training and high schools numbered about twenty-three thousand in that year. Since the average service of the public-school teacher is about five years, it follows that not more than one in every five teachers in 1912 was a trained teacher. For the four out of five teachers who were not graduates of teachers' training schools, the want of preparation undoubtedly fell most heavily on the rural schools whose standard for teachers has never been so high as that of the city schools.

For want of a full life experience, perhaps the best training that may be given for prevocational teachers of agriculture is that of making sociological surveys of the rural district or township. These surveys may include the collection of facts bearing on the character of population, economic, social and educational conditions.

Certain facts relative to the population may be easily gathered: the percentage of urban and rural population; percentage of colored and native born; whether increasing or decreasing and why; number of inhabitants per square mile and number of illiterates.

The survey of economic conditions should set forth the natural resources, mineral and vegetable; chief products, including manufactured products, crops for market and for home consumption; num-

ber and size of farms, percentage of owners and tenants; percentage of wage-earners; average annual wage; increase or decrease in land values, farm crops, live stock and machinery and sources of food and clothing.

The survey of social conditions should reveal the forms of recreation, including athletics, dances, motion picture shows, pool rooms, lecture courses, literary societies, picnics, secret and fraternal organizations; means of transportation and communication; moral conditions including tendencies toward criminal practises and sanitary conditions.

Among the facts which should be gathered in the educational survey are the community interest in school buildings, the use of school buildings for community gatherings, amount of schooling received by the average individual in the district; pupils who have left school before completing the course, and why; public and private libraries; number and character of magazines taken and read in the district.

These suggestions are given to those rural teachers who want to undertake a survey and because they are used as the basis of surveys in teachers' training schools. Surveys similar to this one have been made by the Georgia Club at the State Normal School at Athens. The president of this club gives the following description of its work:³

³ See *Bulletin No. 23*, 1913, United States Bureau of Education.

"The club is composed of one hundred and forty-one volunteers from the faculty and student body. Spare time is used by individuals and county groups for work upon special chosen topics; and one hour each week is given to club discussions.

"For two years the club has been studying the various phases and problems of population, agriculture, manufacturing, wealth and taxation, farm ownership and tenancy, public roads, public sanitation, cooperative farm enterprise, schools and churches in Georgia. The state has been passing under searching review as a whole, and in detail, county by county. Every step of the way, Georgia is compared with the other states of the Union and ranked accordingly. But also her gains and losses, between 1900 and 1910, are exhibited in a ten-year balance sheet.

"Meanwhile the various student groups have been working out similar balance sheets for their home counties, each county being ranked among the other counties of the state in all the particulars covered in the club studies. These bare facts are then translated into simple running narratives for easy reading by the wayfaring man back in the home counties. Thirty-six such surveys have thus far been given to the public. They embody facts and well-considered conclusions. The club believes that facts without opinions are useless, and that opinions without facts are impertinent and mischievous.

"And so the club is ransacking the census returns, the reports of the State House officials, the county tax digest, the grand jury presentments, the minutes of the church associations, the section on Georgia in

the school library and every other available source of authoritative information.

"Most of the students are country bred and usually know their home counties thoroughly; but when they study the drift of affairs and events during a ten-year interval, and check the contrasts, they are brought face to face with causes, conditions and consequences within small, definite, well-known areas.

"The discoveries challenge interest and concern like a bugle blast. A sense of civic and social responsibility stirs in them. They hear the call of service in the countryside, to service within the walls of their schoolroom and far beyond it. All of these young people will be teachers, but few of them will be teachers merely; they will be leaders as well, in all worthy community enterprises. The rising tide of patriotic fever and fervor in the Georgia club is a large asset for the school and for Georgia in the future. Clear thinking in economics and sociology in our schools is too often like sunshine in winter—full of light and freezing. But accurate, definite knowledge about one's own home and people is tonic and quickening to the civic senses. It is full of life and light. It is a concrete, direct approach to the formal studies of economics and sociology in our colleges and universities."

For country school-teachers, who want to prepare for teaching agriculture, the model practise schools and practise work are beneficial. Many states maintain practise schools in connection with their state normals, but this work may be done also in the

county training schools and in the teachers' training departments in the high schools which undertake to train teachers.

There are available for the rural teachers already employed who can not afford to quit teaching and who want to prepare themselves for teaching in agricultural schools, special courses in summer schools, extension courses and correspondence courses. Ohio has organized special extension courses in several counties for training agricultural teachers. The schools are in charge of instructors from the extension department of the State Agricultural College and the funds used to support the courses are received from the federal government under an act of 1907. At least twenty-five state institutions and at least five private schools have arranged to give correspondence courses in agriculture.

There must of necessity be a great deal of experimentation in the training of teachers by high schools, county training schools, colleges and universities for vocational teaching. The product will not be uniformly useful, but the experimentation may be warranted as a part of the effort to work out the problem.

It is probable that we shall have less trouble in obtaining an adequate supply of efficient teachers of agriculture than of teachers of industrial vocations and the commercial pursuits. But it seems quite

practical that high-school students who desire to become industrial teachers may gain no little shop experience by working part time while they are pursuing the regular high-school course. In fact, it is wise for them to work part time whether they expect to teach or not.

CHAPTER XVI

HOW SHALL THE OBLIGATION BE MET

More money needed when education becomes universal—The historical development of local theory of education—The growth of state supervision—State aid—National aid—Systems of aid most efficient plan—National importance of vocational education—Competitive trade—Social unrest—Agricultural development—New burdens—Imminence of the problem—States and communities alone can not meet the needs quickly enough—Differences of financial abilities—Team play of the nation, states and local units needed—The proposal before Congress for national aid.

THE program of vocational education outlined in the previous chapters will require more money for the public schools. From one to two years will be added to the average school life of the children and a complete system would bring at least four million students into the part-time and evening schools. Extension work, correspondence courses and vocational guidance and vocational libraries will require additional money. It is going inevitably to cost more to support public education when education becomes universal than it does now when more than ninety per cent. are only partially educated. This cost will not be in proportion to the number added to the school population, but it will nevertheless be a considerable burden.

Assuming that vocational education is an obligation of this democratic people—and who can doubt it—how shall this obligation be met? Where will the money come from to train men in the hundreds of vocations; to prepare a new kind of social teacher for the task of training men; and to provide the equipment necessary for this large work?

These are questions of first-rate importance. They are fairly up to the American people, at this very moment when beginnings are being made to meet the obligation which rests upon them.

By an historic accident the schools have come to be looked upon as the concern of the state and the local units. Indeed many go so far as to declare that the schools are a local problem solely. Resistance has frequently been made even to state interference or support, which carries with it inspection in educational matters.

The national government can have no direct control of the school administration because the federal power is a delegated power and education is not one of the powers delegated to it. The constitution is silent on the subject,—silent, not because the framers of the constitution were not in sympathy with education, but because public education was at that time almost unknown. Most of the earliest state constitutions likewise ignored the subject for the same reason. There were no free schools and it was not considered an obligation to furnish free schools.

An advanced step was that in Pennsylvania, where it was declared in 1790 that the state ought to establish schools so "that the poor might be taught gratis."

It was nearly the middle of the last century when free schools began to develop. They came slowly and even in the memory of men, not yet old, free education was narrowly limited. In some states free schools were abolished after a trial. Under the circumstances the elementary schools grew up in the main under local stimulus and control.

The result of this local development was that education was diffused very unevenly in each state. Some localities provided good teachers, ample equipment, and a reasonably long school term; others made no move for public education whatever; while in many places schools were so poorly equipped and conducted as to be practically useless.

But there soon grew up a consciousness on the part of the state and nation of their duty toward public education. It was recognized that a nation or state part ignorant and part educated could not endure on solid democratic principles. The new state constitutions of the middle of the last century declared for the general establishment of free schools and the general diffusion of knowledge. The "local" theory of education was exploded by the march of events and the state assumed its duty to see that the citizens of every community should have adequate

opportunities for education. State aid was given to encourage action on the part of local communities; the weaker districts were given special aid; expert assistance and guidance were provided; close supervision was finally established by state departments of public instruction and state boards of education and, lastly, the establishment of elementary schools in all communities was required and attendance of children therein made compulsory.

Coordinate with this movement for state aid and supervision of education came the recognition by the federal government of the plan and purpose of education in our national life. Not being permitted by the federal constitution to take an active part in establishing and controlling educational systems, the federal government has contented itself with granting direct aid either in money or lands to be used by the states as they saw fit. First and last, according to Monroe's *Encyclopedia of Education*, these grants for the common schools will have yielded a total income of five hundred and ninety-nine million dollars.

The famous Morrill Act of 1862 granted tracts of land to the states for vocational education in agriculture and mechanic arts. This was supplemented in 1887 by additional grants and by annual grants for agricultural experiment and extension work, until the total amount already contributed by the federal government amounts to more than two hundred

million dollars. By the Smith-Lever Law, passed in 1914, the further sum of six million dollars is appropriated annually for agricultural demonstration work by the states.

Thus by a succession of events, education has developed from a matter of local concern which communities could provide or not as their patriotism or their greed dictated, and which children could attend or not as the enlightenment or the ignorance of parents permitted, into a matter of state and national care and solicitude—the states fulfilling the requirement written or implied in their constitutions that “knowledge and learning generally diffused throughout a community being essential to the preservation of a free government, it shall be the duty of the legislature to encourage by all suitable means, moral, intellectual and agricultural improvement”; and the nation fulfilling the duty laid upon it by its fundamental law “to promote the general welfare.”

In all the development of state and national purposes in education, the theory of local self-government has been maintained in so far as it was possible under the necessities for the diffusion of knowledge. The local units have built their schools, voted their taxes and controlled the operation of the schools. The state has merely said in effect to the localities, “You must provide education of a minimum grade. Go ahead, build and maintain your schools, and the state will help you bear the bur-

den." Obviously under this plan, state inspection and supervision was necessary in order to make certain that the partnership was being properly conducted. The national grants have been made to the states with little but the moral obligation on the states to use the money according to the wish of the donor.

Cooperation in the form of a partnership between central and local governments is the acme of efficiency. Throughout the English-speaking world it has been employed in the form of "grants in aid" with splendid results in many fields of social and economic affairs. Sidney Webb¹ says of "grants in aid" in England that "They furnish the only practicable method consistent with local autonomy of bringing to bear upon local administration the wisdom of experience, superiority of knowledge and breadth of view which, as compared with the administrators of any small town, a central executive department can not fail to acquire, for the carrying into effect the general policy which parliament has prescribed. Without in the least believing that there exists in any government office a special fund of administrative wisdom or that the inhabitants of the smallest town may not know best how to govern that town, there are usually some lines of policy and some directions of expenditure which in the common judgment of the community are better than

¹ Webb, *Grants in Aid*, p. 21.

others. Yet experience shows that some local authorities will at all times be backward in discarding the worse and adopting the better alternative . . . Grants in aid should be so arranged as to give encouragement to expenditures which are deemed in the national interest, desirable, rather than expenditures which are deemed undesirable."

Other reasons advanced by Webb for such grants are that they prevent an extreme inequality of burden between one district and another; that they give weight to the suggestions, criticisms and instructions by which the central authority seeks to secure greater efficiency and economy of administration; and they provide the means of enforcing on all local authorities that "national minimum" of efficiency in local services which we now see to be indispensable in the national interest.

There are many practical considerations which argue for local, state and national cooperation in vocational education aside from the efficiency of the method, and the preservation of local initiative and self-government. The need for vocational education is a national one, involving our future success as a nation, both in relation to foreign countries in trade and commerce and to our social and economic problems at home. In the future struggles for commercial supremacy in the world's markets, that nation will win, and will deserve to win, which makes the best goods at the lowest price. Dependence upon

supplies of raw material which has heretofore given this country an advantage is only a temporary advantage which does not count in the century-long commercial struggles before us. In fact, only a part of a century will be needed to remove the advantage which we now possess, in our supplies of raw materials, unless we reform our wasteful and ignorant methods of mining, lumbering and farming, and of utilizing the products of mine, forest and field.

We can not depend upon a few industrial leaders of brilliance to keep us up in the race. To be sure, we have managerial skill of a high grade, and upon it we have built what we now possess. But the supply of such men is limited and the specialization of industry has cut off the principal source from which the most efficient have come. There is a wide gap between the men in the management and the men in the ranks. A few men in the factory do the thinking, while thousands automatically work on and often are even discouraged from thinking. The combination of thought and work is reduced to a minimum. Such a condition may be temporarily successful, but is disastrous in the long run, and that disaster extends to the commercial life of the nation.

Industrial efficiency means efficiency all along the line. Efficiency means the ability to do a task in the very best manner and the desire to do harder and more important tasks. Promotion must, in some

manner, be held before all men and that can only be done by wide-spread training, reaching every man in the ranks. Germany recognized the necessity for universal training and it was recently her proud boast that in a few years there would not be such a thing as an untrained man in the empire. What that would have meant to the trade of nations were it not for untimely war, can only be conjectured. Certain it is that the unfaltering advance of German trade and commerce has been due to vocational education. The nation's purpose held to that course and planned for a further advance by promoting educational efficiency through every grade of labor. Our nation must learn the lesson and apply the method, if any solid, permanent, world results are to be accomplished in our commerce.

It is imperative that the nation recognize the social significance of vocational education in industrial work and promote such education as a means of furthering the security of our established order. Social unrest pervades the land. Everywhere one finds evidence of unsound conditions in the social fabric. It breaks out in the form of strikes; in the demand for legislation regarding hours, and conditions of work; in the formation of labor unions; in the propaganda of the Socialist or the demands of the Industrial Workers of the World.

These conditions can not long continue without serious consequences to the national welfare and the

nation's clear duty is to find immediate correction. One of the most potent means of correction is certain to be found in vocational education. It goes to the very root of the causes of discontent. By providing a means for each man to find a way "out and up," it puts the divine spark of ambition into men. It puts promotion in the way of every man who will profit by it, and thus removes the one chief evil against which men justly complain. It opens up the safety valves through which the righteous discontent of the workers may escape to the profit of the man and the benefit of the nation.

The national importance of agricultural education scarcely needs to be referred to here. Agriculture is the principal basic industry of the country and upon it depends the prosperity of the nation. Markets rise and fall upon the reports of crop yield. So closely is our industrial fabric knit with agriculture that captains of industry and great financiers wait with anxiety before acting to get the first official crop predictions.

It is the nation's purpose to foster agriculture; to preserve the soil and to build up a countryside which shall be a solid bulwark against social decay. The economic profit is great and the social value is incalculable. In this the states and local units join heartily and effectively. All profit by the cooperation and all should pay the cost.

The task of education in these new fields is one

of analysis and cautious advance. We need to know what we are attempting to do and make plans on the basis of ascertained facts. We should know what knowledge is worth while and the "relative value of knowledges" and we must find men and women capable of imparting to learners what has been determined to be of most worth. Efficient cooperation of all agencies benefited is needed to stimulate the production of a new kind of social teacher who can study intelligently the needs of industry, agriculture, business and home and their relation to the broader needs of civic life and who upon the data gathered from such study may build school courses suited to the needs of all workers and who can grasp the problems presented by the new order so that the movement for vocational education may press steadily forward without being diverted from its real purpose.

What has been said of the nation's duty applies in a larger way to the individual states. The competition which the nation enters into with the world is, in miniature, engaged in by the states with each other. Each state has its own developments to sustain; its special industries to promote; its own resources to conserve and its own social problems to solve. Some of these can be left to the local units, some to the nation. The state must work them out through the local units with such aid as the federal government may grant. Thus the promotion of

textile manufacture in Massachusetts in competition with that of the South is a problem which Massachusetts is most concerned in solving but upon the right solution of which the nation has an interest. If that problem is solved by Massachusetts through education whereby a finer and ever finer grade of textile shall be the product; if the people of Massachusetts meet the competition of Georgia by learning to make better goods and leaving the coarser goods for Georgia's development, the result is a national benefit and a state asset and of great local importance to all cities where textiles are made. The counter-action of any competition, whether between states or nations, is to be found in the development of new or superior products. In the friendly rivalry of states each state can profit greatly by the development of its products through educated skill.

The cities and towns have a greater interest than the state or nation in education which fits their industries. Their concern is immediate and pervading. The results are tangible. They can be seen in the direct prosperity of the community and its citizens. In the nation and the state the results are merely observable in the aggregate; to the cities and towns it means concrete betterment; to the citizen it means efficiency, prosperity, contentment, hope for himself and his children.

The conclusion which follows from these statements is obvious. Who shall bear the burden? The

nation, state and local communities, being the joint beneficiaries, should share the cost with the co-operation if not the financial aid of the industries more directly benefited. The obligation rests peculiarly upon the state and nation to point the way and lend inducements. Study of the problem is needed and expert assistance must be provided. These, the states, but more especially the nation, are fitted to give. The obligation rests upon the local communities thereafter to initiate the program, to study local needs, to provide the schools and to co-operate with the state and nation in their support.

But there are other considerations more loudly calling for unity of action and more clearly emphasizing the distribution of the burden, chief among which is the mobility of our workers. A man may be born in New York, educated for a trade in Cincinnati, and spend his days in Chicago. His vocation may call him into many states in a single year, and perhaps in the course of a lifetime he may have done useful work in every part of the country.

According to the census of 1910, only fifty-seven and three-tenths per cent. of the urban population were born in the state where they were then living. Even the rural population showed that only seventy-four and five-tenths per cent. were natives of the state in which they were then living. An investigation by the Russell Sage Foundation in 1913 dis-

closed that in seventy-eight American cities only sixteen per cent. of the fathers of the 22,027 boys thirteen years of age were born in the city where they were then living. Of the boys themselves, only fifty-eight per cent. were natives of the city where they were attending school.

The mobility of industrial labor, moreover, seems to be marked in those industries which are common to many communities as well as to those which are localized in a few industrial centers.

The mobility of population brings also another inequitable distribution of burden through the massing of unskilled native and immigrant labor in a few industrial centers. No one would argue, for instance, that it is just for the cities of New York, Chicago and Boston to bear the entire burden of educating the foreign immigrants whom the laws of the country permit to enter but fail properly to distribute. The inequitable distribution of burden from all of these causes is the most powerful argument adduced in favor of the distribution of burden among the localities, states and nation—the joint beneficiaries.

A second consideration of great importance lies in the unequal abilities of the states and the local units to provide the kind of education which the national purpose demands. The Commission on Federal Vocational Education estimated the wealth per capita of school population with significant

effect. Their estimates show that the average wealth for the whole country per capita is about five thousand six hundred and seventy-four dollars. In ten states the average exceeds ten thousand dollars. In five other states the average is less than one thousand nine hundred dollars. It is apparent that the resources of some are relatively totally inadequate. The commission makes the following statement:

“Assuming that the people of the several states are equally disposed to contribute to the support of their schools in proportion to their means, there will be expended per capita of school population in Nevada nearly ten times the amount available in Georgia or Alabama; in California approximately five times as much as is available in Arkansas, Florida, Kentucky, Louisiana, Oklahoma, Tennessee, Texas or Virginia; and approximately twice as much as is available in Delaware, Indiana, Maine, Maryland, Missouri, South Dakota, Utah, Vermont, Washington or Wisconsin.”

The ability of the states may roughly be estimated upon the present state of indebtedness which varies from three cents per capita in Iowa to \$10.46 in Virginia, \$13.02 in Arizona and \$22.78 in Massachusetts. Thirteen states average less than \$1 per capita, while twelve states exceed \$6 per capita.

A similar story can be told of the relative ability of the cities, towns and rural districts to meet singly

and alone the burdens which increased educational facilities put upon them.

To meet the nation-wide needs for vocational education; to distribute the burdens equitably among the beneficiaries; and to promote efficiency in the expenditure of money for vocational education through team-play of nation, state and local units, there is pending before the Congress of the United States a bill providing for national aid for vocational education in agriculture, trades and industries and for the training of teachers of vocational subjects.

By the terms of the bill, when it is in full force, the sum of seven million dollars will be appropriated annually, three millions of which will go to agriculture, three millions to trade and industries, and one million to the training of teachers of vocational subjects. An additional appropriation of two hundred thousand dollars annually is made to study processes of industry, commerce, agriculture and the home, in order to guide the teaching process. The bill provides that the appropriation shall be spent under the direction of state boards provided for by the state legislatures upon plans submitted by such boards and approved by the national board for vocational education consisting of five members of the cabinet, namely, the secretary of agriculture, secretary of the interior, secretary of labor, secretary of commerce, and the postmaster-general.

The commissioner of education is to be the executive officer of this board, and under his direction the work will be carried out.

Under this bill, if enacted, the states will initiate their plans for vocational education suited to their particular circumstances. These plans, when approved by the national board, will constitute a working agreement between the states and the federal government in the nature of a contract binding as long as the conditions are observed on both sides. The whole initiative is left with the states and local communities, the federal government giving aid only for approved kinds of vocational education. We have thus the preservation of local initiative; the distribution of burden; and the means to promote the efficiency of the kind of education desired. The nation pays part of the cost, and this forms the dynamic force stirring states and local units to action. The nation studies the problem, gives the benefits of its studies freely and encourages local action without the element of compulsory control by the nation, which, in our theory of government, would be objectionable.

The European war has directly emphasized the need for action. We have been thrown back upon our own resources and at the same time we have been called upon to lead the industrial and commercial world. We need to train our workers to meet the new demands. We need research bureaus to

guide industry and commerce and effective extension work to disseminate essential knowledge wherever it is needed. We can not well delay without the surrender of world-wide opportunities.

National aid is the means of mobilizing for action the forces working for vocational education. It is a means of attacking a problem too vast for the states, working independently. All that has been done in vocational education is as nothing compared with that which is yet to be begun. The need for vocational education increases faster than the facilities for providing it. Team play on the part of the nation, states and local units such as that provided in the bill, is urgently necessary if we are to advance the national welfare.

CHAPTER XVII

WORK AND CULTURE

What is culture?—The medieval conception of culture—Introduction of manual training and of the occupational interest into the curriculum—The social difference in vocations and the explanation—Culture closely related to thorough and carefully-planned methods of doing work—Art and artisans—Homely evidences of culture—Economic phases of culture—Erroneous notions of culture—Culture for our working hours—Universal education wholly unrealized—Education must dovetail into the life-work of boys and girls.

APPROXIMATELY one hundred million people come within the range of the American system of education. Millions more will come under this influence. A few realize their maximum potentialities as citizens of the republic, as workers in the fields, the home, the marts of trade. An almost unbelievable majority of our people never rise above the plane of superficial thinking and indifferent effort. Too many of us die propertyless because we put off saving pennies until we are able to save dollars. Too many of us fail to attain a higher state of culture because we are unwilling to make modest beginnings.

Vocational education recognizes this current human weakness and undertakes to forestall its un-

happy consequences by careful scientific education for each boy and girl in accordance with individual capacity, personal talents, determinate ability. Education for a calling need by no means be one-sided or devoid of general value and is, as Doctor Kerschensteiner says,¹ for most men, and especially for workers in industries, trades and traffic, well nigh the only way to reach a higher stage of culture. What we want in this country is not greater culture so much as wider culture. It is the dissemination of culture which must be brought about. We must universalize it, not forgetting that the man who does an humble task is quite as susceptible to culture as the man who performs a public service, even though in a lesser degree.

Culture, in its broadest aspects, means the supreme realization by all the people, taken individually, of their potential strength and power. It means wider intelligence and greater personal skill. It is a program for no less than one hundred per cent. of our people. "Fortunately," says David Snedden,² "we no longer hold the older notion that culture is inseparable from certain specialized forms of appreciation, such as ability to read Greek, speak French, recite sonnets, or discuss the latest fiction, and we are slowly learning to conceive it as something

¹ *Fundamental Principles of Continuation Schools*, an address delivered under the auspices of the National Society for the Promotion of Industrial Education.

² *Problems of Educational Readjustment*, p. 73.

deeper than the mere possession of etiquette and a set of conventions."

The industrial revolution has done its part to break up the medieval hierarchy of learning. The invention of the printing press, the improved methods of communication and means of travel, the growing scope of the division of labor from the confines of the community on the outpost of civilization to the world-wide barter and sale have facilitated somewhat the advent of an intellectual democracy. Yet the medieval conception of intelligence still persists. Schools deal with mere symbols of knowledge, and learning is abstract, intangible, unreal and largely devoid of utilitarian significance. While appearing to ignore any consideration of their social responsibility, the schools have likewise failed to sustain the interest of the individual learner. The commonest reason given for the introduction of manual training and domestic science into the curriculum was, as John Dewey says,³ to engage "the full spontaneous interest and attention of the children"; to keep them "alert and active instead of passive and receptive"; to make them "more useful, more capable and hence more inclined to be helpful at home"; to prepare them "to some extent for the practical duties of later life."

It might be explained how invention and enterprise have changed the face of the industrial map

³ *School and Society*, p. 26.

and how the processes of industry, once the proximate interests of the child's life, are now remote, inaccessible and obscure. The period of primary production in the home is gone never to return. Manual training and domestic science may be regarded either as successful experiments that changed somewhat the form of a system without affecting its content, or as preliminary steps to the complete transformation of the educational system by introducing into it the occupational interest. By and through the transformation, as Dewey says,⁴ the entire spirit of the school is to be renewed. Thus the school "has a chance to affiliate itself with life, to become the child's habitat, where he learns through directed living, instead of being only a place to learn lessons having an abstract and remote reference to some possible living to be done in the future. It gets a chance to be a miniature community, an embryonic society. This is the fundamental fact, and from this arise continuous and orderly courses of instruction."

While Dewey's arraignment of the present system seems harsh enough when he comments upon the isolation of the school from real life, as, for instance, "when the child gets into the schoolroom he has to put out of his mind a large part of the ideas, interests and activities that predominate in his home and neighborhood"; or when he pleads for

⁴ *The School and Society*, p. 31.

a school that will be "active with types of occupations that reflect the life of the larger society"; nevertheless he appears to avoid the natural sequence of his own reasoning and to miss altogether the point to vocational education when he remarks in another place,⁵ "it is not meant that the school is to prepare the child for any particular business, but that there should be a natural connection of the every-day life of the child with the business environment about him." On the contrary, this is just what vocational education means, if it means anything. Moreover, it is precisely what an "organic connection between the school and business life" means, if it means anything.

The trouble with what Dewey says, incidentally, is that it was written before the full significance of manual training and domestic science was understood in this country, but fundamentally that even he is not able wholly to depart from the theory that education, learning or knowledge is the final aim and ambition of man, while food, shelter and clothing are mere incidents to human existence. Manual training and domestic science were to be cast upon the water like the Scriptural bread with the hope that somehow, since there is comparatively little compensation and small response from present intellectual exercises in the school, manual training and domestic science would return forthwith baited with

⁵ *The School and Society*, p. 90.

eager learners. Or, perhaps, manual training was never meant to be more than a prop, and was expected to fulfill its mission as such; albeit, there has always been a more obvious reason for driving a nail straight than that of intellectual diversion or merely keeping a large percentage of the boys in school.

We can agree with Dewey, however, that "occupations in the school shall not be mere practical devices or modes of routine employment, the gaining of better technical skill as cooks, seamstresses, or carpenters, but active centers of scientific insight into natural materials and processes, points of departure whence children shall be led out into a realization of the historic development of man." If vocational education can attain this aim in purpose and method, and it can not afford to stop short of it, then we shall have combined the two most important ideals in education, the cultural and the utilitarian. It is not merely that carpentry and medicine are so vastly different in content that we call one manual labor and the other a learned profession. It is not merely that the carpenter works with his hands and the physician may find such unnecessary. It is because education has devised a more or less scientific approach to medicine and has failed to do so in the case of carpentry.

"The man that builds my house, shall he be merely a sawer off of boards and a nailer on of

shingles or shall he have and feel an intelligent sympathy with its architectural plan?" asks Doctor Davenport.⁶ "If he have that sympathy he will feel it as he works, and he will unconsciously put it into his works, and we shall have the plan fully executed and the house will become a habitation full of human thought in its execution as well as in its design. If he does not feel that sympathy with the ideal of the architect, he can not put the best into its execution and the result will give the impression of an ideal badly realized and badly executed. The common man may not be able to originate and create, but if he is properly educated he will feel the artistic thrill in execution and both he and his work will be the better for it. This, too, is culture."

Assuredly, it is culture, and culture which is available to every man, high or low, rich or poor. It is the culture of effort, the culture of efficient service. It is quite as accessible to the blacksmith as to the lawyer; to the farmer as to the teacher of Greek; to the toiling housewife as to the painter of beautiful pictures. In any case, the standard is not the possession merely of knowledge, inspiration and insight, but the use of knowledge, action based on inspiration and creation drawn from insight. "I can not see much culture in mere ravings upon the achievements of others or even in meditation upon lofty thoughts and purposes unless," says Daven-

⁶ E. Davenport, Dean of the College of Agriculture and Director of the Agricultural Experiment Station, University of Illinois: *Education for Efficiency*, p. 95.

port,⁷ "that meditation leads to action." So with the carpenter, the blacksmith, the farmer, the housewife, the test is the same that we must apply to the practise of medicine or law, the teaching of Greek and the finish of an oil painting. Judged by this standard, we must not be surprised if teaching Greek is dwarfed by comparison with ironing dainty linen or nailing on a horseshoe with consummate skill. As Dewey points out so aptly,⁸ "genuine art grows out of the work of the artisan" and "the art of Renaissance was great because it grew out of the manual arts of life. It did not spring up in a separate atmosphere, however ideal, but carried on to their spiritual meaning processes found in homely and every-day forms of life. The school should observe this relationship. The merely artisan side is narrow, but the mere art, taken by itself, and grafted on from without tends to become forced, empty, sentimental."

Consider the beautiful rugs for which we are willing to pay such fabulous prices! Are they not works of art? Or the exquisite tapestries which women with a sense of the beautiful are so eager to possess? Are they not also the products of minds fired with imagination as well as hands skilled with the suppleness of execution? Or a bit of dainty embroidery or lace? We are with one accord ready to

⁷ *Education for Efficiency*, p. 94.

⁸ *School and Society*, p. 103.

recognize back of these things a kind of culture for which we gladly pay a premium. Yet no rug of Oriental design and workmanship, no tapestry of a departed century, no embroidery or lace of fanciful workmanship has been evolved as a mere object of beautiful and artistic creation. The fundamental idea back of their creation was service. Is any one who loves horses, especially harness horses, and who understands the importance of a properly balanced shoe ready to say that the nailing on of that shoe consists merely in driving nails through holes in a curved iron bar made by machinery? The stable boy would answer this question with a significant grin, yet he probably would fail if asked to analyze the cultured possibilities in a blacksmith's training.

Many things have combined to disclose to the servant the cultural opportunities in training for the farm. The clodhopper is a disappearing inhabitant of the country and in his place we have, here and there, the young man who, having dreamed dreams and seen visions, is realizing them on the farm. He takes charge of the old homestead, perhaps, and in a few years witness the transformation! If he is truly awake to his opportunities and at the same time aware of his limitations, he will be able with a comparatively small expenditure of capital, to transform the appearance of the home and its surroundings. Grass and trees cost little effort and practically no money. Graveled driveways and paint

are economies at whatever cost, but they can be added with little outlay except effort expended at odd times. Fences, naturally, must be kept in repair, else a cow may wander off in the corn, founder, and lose the cost of a well-built fence. Fence rows will be kept clean of weeds since it is cheaper to cut weeds in fence rows than contend with them in hills of growing corn and in clover. Obvious as the truth of these statements is, how many farmers in a given township plant trees with any regularity, keep their driveways graveled, their buildings painted, fences repaired and fence rows clear of weeds? The doing of these things is by no means a proof of culture, but it is very likely to be an evidence of it. Certainly the external evidences of good farming are clearly indicative that the processes are thorough, that they have been thoughtfully considered and carefully planned.

This also is culture—the capacity for full and faithful performance, for efficient and masterful service. Back of it all is not merely training for routine precision and mechanically perfect execution, but the breath of life itself, the thought, individuality, originality of the doer. Incidentally, this personal touch, this originality is the secret, if it may longer be considered a secret, of the Germanic preponderance in world markets. German tradesmen, and this means Germans who have anything whatever to do with commerce, have not been routineers.

On the contrary, they have been highly adaptable, pliant, eager to please and certain of their ability to please. Education has made them both capable and confident. Not the education which acquaints people with obsolete processes and dead languages, but vocational education which, knowing the historical background of commerce and industry, looks to the future and for the present, measured by standards extant, makes men and women efficient.

The economic significance of the culture which implies thorough mastery of individual work is little realized in this country. Yet culture is not wanting in economic aspects; at least the primary stages of culture. When it is remembered that the background of the Renaissance was perfection in manual arts, the crating of a case of fruit, without losing its immediate commercial purpose, takes on a new and higher meaning, a finer appreciation for small things. The farmers of this country have failed time and again to gain any foothold in city markets merely because they do not understand the importance of proper grading and packing, or because they have not learned the art of making the products of orchard and garden look attractive to the customer in the city or the middleman who must sell to the city buyer. Complaints against discriminations by the middleman avail quite as little as the efforts of the American manufacturer to unload a surplus designed for domestic consumption on a market, not

only foreign geographically, but foreign to our processes and our methods. Any culture that is very much worth while, any culture which is more than a superficial and wasting polish must be founded on economic considerations and depend for its ultimate realization on a superiority of technical skill. Otherwise any man learned in the law might convert his legal imagination, by merely willing it, to the terms of angles, domes and spires and design a beautiful cathedral. Our sense of the practical, however, has established the rule that architects not only design but they supervise construction and see to it that the plans and specifications they have drawn up are carried out. Spring poetry is an annual scourge somewhat because our spring poets do not understand the technique of metrical construction. Of course not everybody who knows the technique of poetry can write great epics, but it is difficult to believe any one could produce an epic without knowing anything about the form of epics.

We have in this country an altogether erroneous notion of what culture means, of what it consists. We have been accustomed to think of it as something apart from effort. Perhaps the commonest conception is that of a wide learning in and broad knowledge of things which have no possible connection with one's vocation. We therefore have sought to divorce culture from the vocational, the material, the economic. Culture means more than being

able to gaze with delight and appreciation upon the tints and colors over which some old master toiled with the genius of inspiration. This capacity is eminently worthy, but it not only is far out of reach of the multitude, it is at best merely an incident of culture. The masses of the people have little or no opportunity to visit the great art galleries of this country, much less those of Europe. Moreover, very few of us can be expected to gather more than a veneer of culture in gazing at mere pictures, for it is certain we can not afford rare works of art in our own homes. Our artistic education, for instance, may as well begin with the selection of pretty and inexpensive prints which we really can afford to own. Culture means more than philosophical whims and impractical visionary obsessions; more than the caprices of eccentric temperaments. These are quite as likely to be delusions of the egotist, vagaries of the drone or the contemptuous cynicism of the snob as signs of culture. We have no very great need for this species of culture, but we do have a most pressing need for culture that is grounded on the economic independence of the individual.

While this volume undertakes to maintain that no work is wanting in cultural aspects and that the spiritual insight of a first-class carpenter or builder is culture quite as much as the information or wisdom of the poet, it would avoid any apparent pur-

pose to minimize the so-called cultural subjects in industrial, agricultural, commercial, or home education. The present-day training given in the correspondence school or the private business college is not only inadequate, but faulty. The young man who has no greater equipment for a business career than what he has got in the average business college is in a sad plight. He is headed straight for a blind alley from which he is very likely never to emerge. Now that we have gone to the extreme with learning for the sake of "mental discipline" or learning which "might come in handy some time," we do not want to plunge into the other extreme and reduce education wholly and strictly to the mechanical plane.

Doctor Davenport⁹ is right when he says, "I would teach to all classes of people all forms of human knowledge both those that lead to immediate results and those that appeal strongly to the intellect, regardless of professional ends," except that the broad training which should accompany a vocational course is quite as likely to appeal to the intellect as the same training minus a vocational relationship and to possess the additional value of leading directly to results. Davenport seems not to have grasped, however, the complete significance of vocational education as a new avenue to culture, for he would set industrial training over against culture as

⁹ *Education for Efficiency*, p. 91.

though they are somehow opposed to each other. The culture which he proposes to open to the vision of the industrial people is a culture for their *leisure hours*.¹⁰ There is a flavor of condescension, a smack of conceit and an admission that seems like unsolicited or mock charity when, after proposing culture for the *leisure hours* of the working people, he explains that "there is nothing about labor or even about common things that makes impossible the loftiest intellectual achievements." What we want for the working people is not a culture for their *leisure hours*, but a culture for their *working hours*, a culture that dominates every thought, word and deed as well after the morning whistle blows as after the blast at six P. M.

Notwithstanding our boastings as regards our system of free and universal education, we ought to know enough to know that it is neither free nor universal. Is education free when lads of ten and twelve quit school because of economic necessity? Is education free when ambitious young men who want to follow a profession which requires further study are compelled to leave off their education at the high school? Certainly institutions of higher learning have their doors open, but they are just beyond an unbridged precipice. Is education universal when it merely sows seeds of discontent in the hearts of young men who must struggle for their

¹⁰ *Ibid.*, p. 91.

daily bread; when it creates an appetite without furnishing any means to gratify it? Not that we would mollify much this same discontent. We are not so overjoyed with our industrial system that we want to bend further the backs of unborn children in abject submission to it. We want no recruiting stations for strikebreakers established on property owned by the state and set apart for educational purposes. We want, as one of the beginnings of vocational education, certain industries put without the pale of public recognition and we want the reasons frankly stated. We want to see young men trained *away from* certain industries as well as *for* certain industries. No very valid argument can be made against vocational education merely because our industrial system is out of joint. If it is out of joint it has come to be so under an educational system which, as far as industry, commerce, agriculture and the home are concerned, is wholly non-vocational. There appears to be, as a mere argumentative proposition at least, a possible merit in the other extreme, which is, of course, vocational. An educational system under which industrial conditions have become intolerable for the worker and which must answer why fifty per cent. of boys and girls between fifteen and seventeen years of age, and twelve per cent. between ten and fourteen are not in school, would seem less vulnerable not to have raised the question of industrial cleavage.

Because vocational education recognizes the economic limitations of the individual; because it recognizes, not that some boys must work with their hands alone, which may or may not be the case, but that a large majority of our boys and girls must work in some way; in some way perform some useful and remunerative labor is it proposed to universalize education by making it dovetail into this life-work. Its purpose can hardly fail when its course is founded on both native instinct and economic order.

“If in this way,” as Dewey says,¹¹ “the school is related as a whole to life as a whole, its various aims and ideals—culture, discipline, information, utility—cease to be variants for one of which we must select one study and for another, another. The growth of the child in the direction of social capacity and service, his larger and more vital union with life becomes the unifying aim; and discipline, culture and information fall into place as phases of this growth.”

¹¹ *The School and Society*, p. 107.

CHAPTER XVIII

TRAINING FOR CITIZENSHIP

Measure of vocational education—Its universal scope—An indictment of the present system—Fails to develop latent potentialities for industrial, agricultural, commercial and domestic work—Relationship between efficient workmanship and citizenship—Effect of habit on education—Economic aggressions due to political power—Wherein classical education fails—Aimless drifting into overcrowded professions and the result—Our wasteful and bad government—People fail in the simplest duties—Individual efficiency means social efficiency—When education is pointless, the level of citizenship falls—The failure of public servants because of ignorance—Specific training for citizenship—Teaching the morals of good citizenship.

THERE can be no higher mission which vocational education can perform, no more lofty ideal it can attain, than the training for useful and efficient citizenship. Ultimately, it must be judged by this standard and measured by this test. Its program rests not only on scientific, individual education and training for the managing and directing vocations, but also on like education and training for the doing of common things. It discounts empirical and lackadaisical methods of mental and physical activity and depends for its service in behalf of useful and efficient citizenship upon its ability to maintain correct habits of the mind and hand. Moreover, it

seeks to establish proper habits among approximately ninety-seven per cent. of the people who are now neglected in our scheme of education. That a man is employed or busy is no proof of his efficiency as a workman and that he merely lives in an organized society is no proof that he is a useful and efficient citizen in that society.

"Every one who lives in a state and enjoys its protection must contribute through his work, directly or indirectly, to further the object of the state as a community for the purposes of justice and civilization," says Doctor George Kerschensteiner.¹ "Not till then is he a useful member of the state. And there can be no doubt that it is the duty of all schools supported by public means to educate useful members of the state."

An indictment against education as now administered might be drawn up in four counts: It fails to develop latent potentialities for industrial work; it fails to develop with satisfactory progress the nation-wide movement for better farming; it has neglected its full duty with reference to the needs of the business world for scientific insight; its program for home life is not comprehensive and has

¹Dr. George Kerschensteiner, Director of Education and corresponding member of the Royal Academy of Applied Sciences in Erfurt: *The Fundamental Principles of Continuation Schools*, one of three addresses delivered in America under the auspices of the National Society for the Promotion of Industrial Education.

failed to develop a very wide spirit for the orderly management of the home. These counts may be consolidated into the single charge that education has omitted its complete duty to the industrial worker, the farmer, the commercial worker, the home-maker, and therefore has failed, to this extent, to educate the great bulk of our people to be "useful members of the state."

Aside from the specific approach to a superior relationship between the citizen and his government, which vocational education warrants, in definite training to that end, who can doubt, for instance, that the industrial worker will have become a better citizen when he has become a better workman? To some extent vocational education for industry, for agriculture, for business and for the home will automatically develop a higher order of citizenship. As a special committee of the American Federation of Labor put it in 1909: "Owing to past methods and influences, false views and absurd notions possess the minds of too many of our youths, which cause them to shun work at the trades and to seek the office or store as much more genteel and fitting. This silly notion has been shaken by the healthy influence of unions, and will be entirely eradicated if industrial training becomes a part of our school system, and in consequence of this system of training they will advance greatly in general intelligence, as well as in technical skill and in mental and moral

worth. They will become better citizens, and better men, and will be more valuable to society and the country." Vocational education and vocational guidance will complete the eradication of "silly notions" about work in whatever quarter and, in directing young men and women out of "blind alleys" and out of uneconomic employment, make it possible for them to perform well the part of useful citizens.

Our educational system by no means has been inflexible, but it does not change fast enough to conform to the changing ideals of successive ages. It ought to concern itself more at this time, for instance, with noisy thoroughfares, excessive water and light rates and all the problems of rural life.

Several explanations are given for the failure of education to keep step with the times. Herbert Spencer said a half century ago:² "If we inquire what is the real motive for giving boys a classical education, we find it to be simple conformity to public opinion. Men dress their children's minds as they do their bodies in the prevailing fashion." And then he goes on to say a little later:³ "Not what knowledge is of most real worth, is the consideration; but what will bring most applause, honor, respect—what will most conduce to social position and influence—what will be most imposing." Spencer

² *What Knowledge Is of Most Worth in Education* (D. Appleton, 1866), p. 23.

³ *Ibid.*, p. 26.

very well states the position of the fond parent who wants her son to have an education that he may avoid everything except the glamour of work, the romance of service.

But the consequences are sad enough. We have undertaken to point out the more apparent results of this system. Likewise we shall endeavor to show how vocational education will change things; how the reorganization of education will usher in a new code of styles for the dress of the human mind. Furthermore, we shall state briefly the rough outlines of a specific course of training for public service, for citizenship, and present, finally, some definite suggestions concerning education for citizenship as related to agriculture, to business, to industry, to the home.

Since the advent of specialized labor, especially since the advent of machine production on a large scale, there has grown up a system of economic aggressions having their inception and strength in political power, which have plunged large sections of the country into industrial anarchy. Strikes and lockouts are become more frequent and more violent. Oppression which miners can not prevent peaceably they oppose by force. In the wake of industrial feudalism are disclosed a whole train of evils—child labor, bad housing, lax morals, intemperance, preventable disease and crime, besides political tyranny. Having won the privilege of ex-

ploiting labor at some distant capital—Washington, Harrisburg or Denver—the despoilers press their program in the local realm where their word, if it can not give life, nevertheless can take it away. “The great mass of the people,” says Franz Oppenheimer,⁴ “live in bitter poverty; even under the best conditions they have the meager necessities of life earned by hard, crushing, stupefying, forced labor.”

It is no accident that the few are able to prey upon the mass of the people. Productive specialization has given the man of general intelligence a superior opportunity through the perversion for private and personal purposes of the processes of government. Commerce and industry attract the man of general training because it is here he can find free rein, both for his imagination and his power.

The few educated men who have prospered are most interested in maintaining the status quo in education. Our bookish curriculum prepares those already possessed with sufficient wealth for a foothold to exploit the producer, and to some extent the consumer, through control of the processes of production, distribution or credit. Wealth or property is the complement of classical training, and the young man surfeited with the latter and minus the former is at a serious disadvantage when pitted against the young man with both, as witness the

⁴ *The State*, by Franz Oppenheimer, Private Docent of Political Science, University of Berlin, p. 266.

abject failures of hundreds of young men who leave our colleges and universities, their heads crammed with Latin and Greek, their pockets empty. If unfitted temperamentally for teaching, they are apt to be quite as badly equipped for earning a living as when they entered college. General training plus wealth is a strong armor in any fight for special privilege under the law. The significance of legislation which secures to two or three men the right to buy and hold a water-power site to the prejudice of the public is indisputable, yet the penniless young man out of college can not take advantage of such legislation however certain he may be of its potential value. It was the man of general intelligence who, a few years ago, made enormous profits out of a prohibitive tariff on steel. Our schools and colleges are doing valiant service in behalf of those who gain economic ends through political means.

Every year a promiscuous throng of young men are trained for professions for which they have no aptitude because the curriculum is directed that way and they have little choice. It is of no consequence, apparently, that young men trained for professional careers find the professions overcrowded, unremunerative and disappointing. The clientless lawyers, the penniless writers and misplaced physicians have a hard struggle for existence. They might have been good farmers, skilled

artisans or successful tradesmen, and they would have been, had their training been in any one of these directions. They were not trained for these vocations because the public school curriculum offered no opportunity for such. They contribute their misguided careers to a system of exploitation partly a natural growth yet consciously fostered, which is waiting to swallow them up. They work long hours, make many sacrifices, suffer the pinch of poverty for a high-school and college education and in the end must know that effort has been futile. Having tried and failed, they go through life accepting their lot as one of the pranks of Fate, and feeling that somehow their failure is an individual matter when, as a matter of fact, it is a social crime. There is one other course they may pursue. They may become pettifogging lawyers, hack writers or quack physicians and, therefore, the most dangerous factors in our citizenship.

The curriculum now followed offers a wealth of inspiration to the class already possessed of sufficient wealth to enjoy it. But it offers little to the economically dependent class. In an age when the dollar mark is the badge of human virtue, Latin and Greek are poor tools in the hands of the working man's sons and daughters. Even Charles Francis Adams, the younger, whose advantages were above those of the average young man, was moved to com-

plain, "In these days of repeating rifles, Harvard sent me and my classmates out into the strife equipped with shields and swords and javelins."

Census figures show that nearly twenty-five thousand young men and women were held as delinquents in various institutions in 1910. The penitentiaries, jails and almshouses contained nearly five times that number. A large majority of the one hundred and thirty-odd thousand were learning the rudiments of a trade, first because the state compelled them to do so, and second, because it was their first opportunity to acquire scientific preparation for productive and remunerative labor. Probably three-fourths of all the people admitted to the penitentiaries of the United States have no trade. Eighty-one per cent. of the inmates of the Eastern Penitentiary of Pennsylvania and the Indiana State Reformatory, in typical periods, were without a trade.

Another striking fact in the census report on juvenile delinquents is that the leading crimes for which the twenty-five thousand young men and women were held in institutions in 1910 were larceny and burglary. Very good reason appears for believing that these crimes were the result of a failure of the state to train the young men and women to earn a livelihood by honorable and productive labor.

Crime and delinquency are no longer regarded as

wholly personal or individual matters. The cases are personal and individual, but the causes lie deep in our social fabric and as a problem of raising the level of citizenship the burden of crime and delinquency rests with the state and society of which our unfortunate classes are a part.

Since our development, during the hundred-odd years of the republic, has been emphatically industrial rather than intellectual or classical we may wonder that the cast of our citizenship does not resemble the mold of our curriculum, or rather at the failure of the curriculum naturally to adapt itself to our most glaring educational needs.

Notwithstanding our emphasis on classical subjects, we have little to show for our pains in this particular. We have produced a very few men of world eminence in art or literature. Although our scientists have produced epochal inventions and have made some revolutionary discoveries, almost invariably they owe little of their genius or inspiration to our school system. Our curriculum does not foster scientific research in the industrial world, and our development in this particular is due largely to our great natural resources. This development, in spite of the curriculum, has furnished the invitation to science and invention. The school system has done little.

Young men and women who come under the influence of our formal education learn thoroughly the

scope of their privileges and immunities as citizens of the republic, but in the public schools they will hear little said about their duties as citizens. There is abundant emphasis on their theoretical political power under the universal franchise but little direction as to the intelligent use of the ballot. We spend vast sums of money to preserve the traditions of Roman and Greek democracies and practically none to perfect the operation of our own. Aside from the fact that we waste at least one billion dollars every year in maintaining our federal, state, county and city governments, they are still pitifully inefficient, honeycombed with petty graft, and stupid.

Farmers who are honestly devoted to improved roads, for instance, are duped into support of Lincoln highways or Dixie highways which for them can have little economic advantage. In the meantime, the local roads which they do use are allowed to suffer for want of competent engineers and scientific methods. People in the cities suffer growing misery from dust, smoke and noise because the men whom they elect to office are so wanting in information that they do not know how to attack these problems. The city beautiful has become the city hideous. Suburbanites pay the nickel for the seat on the street-car they do not get and hang to a strap because the company has convinced them there is no other way. The company also convinces the candidate for office there is no other way when it sends

in its check as a contribution to his campaign. Tenements reek with filth and disease; poverty, crime and pestilence are probably gaining on the population. Segregated vice is suffered to exist because it is the inevitable consequence of licensed intemperance, as well as one of its causes. That two or three thousand men in a single county are disfranchised for selling their votes or a group of city officials imprisoned for election frauds is unimportant, except as it goes to show there must be other counties where large numbers of voters sell their franchise and keep out of court, and other city officials who are guilty of equally nefarious though less flagrant frauds and who have not been punished. At this time a man who has been proved under the law to be a corruptionist is a member of the constitutional convention of a great state and will assist in framing the basic law of that commonwealth. This is the order of citizenship we get under a dilettante system of education which prepares young men and young women for, say, a most successful courtship, but there stops. If no better conditions could be realized it would be useless to condemn and inexcusable to criticize. Presently a system superior to formal education as a basis of useful citizenship will be presented.

To summarize what has been said of an educational system which fails to produce useful citizens: (1) Lack of efficient training for industry has permitted one class of citizens to prey upon the igno-

rance and inaptitude of a much larger class. (2) Vocational misfits, arising out of the narrowly restricted system of education, for want of an honorable means to earn a livelihood resort to sharp practises and become parasites in society. (3) Our penal institutions furnish eloquent testimony of the social disaster resulting from the failure to train young men for an honorable calling. (4) Due to an unparalleled wealth of natural resources, our development is almost wholly industrial, and even our classical curriculum has little to show for its effort. (5) Finally, government is wasteful and inefficient and our people are failing in the simplest duties of citizenship.

It hardly seems necessary to call attention to the relation between these conditions and useful citizenship, the ideal we have set up as the mission of education. It requires no great imagination to understand that the working man, who must battle with his master for primary justice—for the right to live decently—can not perform adequately the duties of a useful citizen; nor any occult power to appreciate the shortcomings of the industrial autocrat as a useful citizen. We can not very well classify occupational misfits or spurious products of professional schools as useful citizens. Delinquents hardly fall in this category and men who are trained for one thing and follow another, however fast profits or earnings accumulate, scarcely realize their fullest

native capacity for useful citizenship. Nor can we associate the mismanagement of public business, the stupidity of public servants with the highest order of citizenship in this republic.

How can a program of education which provides for intelligent and scientific training for a trade, for some remunerative and pleasant work contribute to make men more useful as citizens? In the first place, as long as the worker is poorly trained, as long as he is an inefficient factor in production and his place is easily filled, he can be dominated through fear of losing a poor job. Let the worker become a skilled artisan or let him through combination or cooperation gain control of the supply of the product which he has to sell—then he becomes a potent factor in determining hours, wages and working conditions. Moreover, as soon as he becomes a skilled worker his power and importance as a citizen are enhanced and he begins to tamper with the machinery at the source of his master's political strength.

"We must keep in mind," says Arthur D. Dean,⁵ "that simple and balanced justice make it necessary to give to the wage-earner and to common industries such equivalent as we can for what the present schools are doing for those with generous incomes and for the professional and managing vocations."

Industrial education promises to the individual

⁵ *The Worker and the State*, p. 344.

worker intense specialization of the mind and hand for a definite vocation. It implies a greater measure of individual efficiency, and hence, in the aggregate, a greater measure of social efficiency. As industrial efficiency increases, so will the earnings of industrial workers and their opportunities to enjoy the comforts of life. Happiness should be more widely diffused because wholesome living will be more general. May we not expect, under these improved conditions, a more alert, a more attentive and enlightened citizenship? Good government is not to be expected from the group which subsists by exploitation. Good government, if it comes at all, must come through the great mass of people who, besides being efficient workmen commanding comfortable wages, have sufficient leisure to devote to the duties of citizenship. We do not expect the shiftless workman to perform the duties of useful citizenship; shiftless as a workman, he will be shiftless as a citizen. Is it not quite as reasonable to expect the efficient workman—miner, plumber, shopkeeper, farmer, engineer, bookkeeper, housewife—also to be efficient as a citizen?

If education for industry, for agriculture, for business, for the home, has a single ultimate promise it is that there is to be an end to the encroachments of one class on another. It promises the greatest good for every individual in society—for all of the thirty-eight million people in this country engaged

in gainful occupations. It is education not for minorities, not for majorities, but for all the people. All this, surely, is the substance of useful citizenship.

There can be no question concerning the efficiency of vocational education as a factor in citizenship if it will reduce the number of square pegs for round holes; if young men and women can be placed more advantageously in work they like to do and in work which will yield them a comfortable living. This phase of the problem is discussed elsewhere. Education, scientific training for life, is offered not for three per cent. of the people, but for approximately one hundred per cent.

It has been a common expression in this country that one has to break into a penitentiary to learn a trade. More than fifteen years ago the late Charles R. Henderson expressed the opinion that "the principles of industrial training will transform our prisons and even make them suggestive and instructive in respect to the educational processes of the outside world of freedom." Prisons and reformatories, strange as it may seem, have pointed the way to a universal system of industrial education. When we discovered that industrial training is good for delinquents we began to wonder whether it would not be good for boys and girls before they have had a chance to become delinquents. To confine trade training to reformatories and prisons is like locking the door after the horse is stolen, except that it is a

bit more disastrous to society to lose a boy by neglecting him than to lose a horse by leaving the door unlocked. The importance of compulsory trade training for young men and women has magical possibilities as a preventive for delinquency and crime and hence as a factor in citizenship.

Public education was undertaken in this country on the theory that the state, for its own protection and perpetuity, should educate its citizens to perform their duties as such. Discovery of unsurpassed natural resources has transformed the very fabric of our civilization, but the dominant purpose of education has scarcely changed. Classical antiquities are the ruling order of instruction, the daily program of study. If the level of citizenship has fallen, under classical forms of instruction, we can hardly be surprised since prevailing educational ideals are more or less pointless in the new civilization. Education needs to catch up with the dominant industrial, agricultural, commercial and domestic needs of the day if citizenship is to attain its former level. Moreover, if useful citizenship is once attained, it can only maintain a given standard of usefulness if education keeps pace with our vocational interests.

What can education do to remedy the indifference of public officials, the mismanagement of public affairs? Rather, what can education do in behalf of efficient government that it is not already doing? Allowing for the inherent defects of democratic

government—and it must be admitted that popular government naturally lacks the mechanical order and rigid precision of autocracies or tyrannies—there is still a vast unexplored hinterland in the domain of citizenship that awaits the conquest of education.

Assuming that the crux of useful citizenship is an enlightened and vigilant electorate, ours is a problem of diffusing intelligence and inspiring moral courage. People know little about their government except what they are told in the passion and fever of political campaigns, which is generally wrong. The late Senator Aldrich was authority for the statement that there is an annual waste of three hundred million dollars in our federal government, yet the average man has not the remotest idea of where the waste is except to entertain the general suspicion that it is everywhere. Even Mr. Aldrich, who had a long experience in the United States Senate, failed to disclose the sources of the leaks. Every two years we elect four or five hundred men to the lower house of Congress, who are honored citizens "back home" and who, nevertheless, yield to a half dozen men in Congress because only they know anything about government. We elect tax appraisers, members of state legislatures, mayors of great cities, even governors of states, men who have only vague notions of the science of government, in the same offhand way.

What can education do here? On the theory that

the public service is a distinct vocation, education can train specifically for public service. Education can train tax appraisers, probably members of state legislatures, certainly mayors and perhaps governors. Needless to say it is already done in some parts of the world and in this country the germs are already well planted in the city manager idea of municipal government.

Experts in government is an offensive idea to political bosses but a very practical idea from the standpoint of better government.

It is not sufficient, however, to educate for citizenship only those persons who are to fill public office. Probably if the so-called rank and file were better informed the specific training for public service would follow as a matter of course. The common man needs to know more about his government, especially the government nearest to him. Education for government must begin in the public schools. Public instruction in civics at present lacks concreteness because it is based on text-books that are obsolete or irrelevant and attempted by teachers with no special preparation for the work and no first-hand knowledge. Moreover, training for citizenship is probably the most dynamic program which education may undertake and it must keep time with political and economic development. The best basis for instruction in citizenship, given an enlightened and skilful teacher, would be a good news-

paper clipping service, since many of the leading magazines have lapsed into "innocuous desuetude."

Training for citizenship in the public schools has more than one channel to follow, though their boundaries are sharply defined by the dominant vocational interests of the community. While the city schools must concern themselves with the abatement of the smoke nuisance, the suppression of useless noises, city planning, municipal ownership, the elimination of dust, the regulation of traffic, public safety, street paving, franchises and the organization of city government, the rural schools will deal with a different group of problems. Here good roads, cooperation, tenancy, agricultural credit, community centers, legislation for the control of products used, raised or sold on the farm, the organization of the various official agencies for promoting agriculture, the intimate workings of township, county and state government are the dominant interests. Certain subjects or problems are common or of interest to both city and country—taxation, schools, markets, transportation, socialism, civil service, primary election reform and the courts. In the realm of useful citizenship, certain subjects or problems are patent to occupational interests, as, for instance, those young men and women who have chosen a business career should know about markets, the consular system, monopolies, banking, interlocking directorates, currency and industrial insurance, not

merely as phases of business, but as phases of good citizenship. Industrial workers are especially concerned with unemployment, collective bargaining, strikes and lockouts, industrial arbitration, social insurance, housing, child labor, cooperation and industrial safety. Some of these subjects are of immediate interest and practical value to young women being educated for the home.

By no means is the program to be completed in the prevocational schools. As much as possible should be given as soon as possible, though some of these subjects and problems are beyond the comprehension of the prevocational student. They will remain for the vocational school proper or even in some cases for institutions in advance of the vocational school.

Our greatest fear for the failure to realize the program lies in the inability of teachers to comprehend and execute it. We need, therefore, specific training of teachers for this vital work.

It must not be taken for granted that formal instruction in our current public questions only will guarantee useful citizenship. True, it is an essential element, but intellectual independence, moral courage and character are deciding factors in the life of the nation. Instruction in public affairs is chaff before a strong wind unless the grandeur of noble public service, the righteousness of intellectual freedom, the morality of useful citizenship be burned deeply

in the hearts of young men and women. In politics, "the old order changeth." Education, too, must change its dress.

"The old order is the persistent expression of social, political and educational aristocracy. The new order is the advance agent of educational and industrial democracy. The new order is as sure to persist as the republic is to endure, for it is the logical outworking of the democracy of the nation."⁶

⁶ Andrew S. Draper.

CHAPTER XIX

THE IDEAL SCHOOL

Socializing the school—Meeting the needs of all—No age limits to its service—All education at public expense and under public management—Studying the vocations—Charting blind alleys—Keeping abreast of the times—Outline of plan—Working with workers—The fruits.

THE program of education outlined in the foregoing chapters means a complete socializing of the public school system in order to meet the needs of an industrial society and to realize the ideals set forth. The school should become the center from which will radiate all activities designed to better human conditions through education. The ideal school will be one which stands in the forefront of our onward moving civilization, discerning new tendencies, discovering and keeping abreast of discovery of new truths of science and art, analyzing the ramifications of industrial and social progress and seeking to guide the young and old alike by education into ways of life and industry which shall enable them to live completely according to their capacities and their more or less fixed circumstances.

The school must be universal in its scope both as to its pupils and its subject-matter. Every per-

son should be given his opportunity to realize all that he is capable of realizing for himself and for society and no subject should be omitted which may aid in any adequate way to the promotion of individual and social welfare. True democracy demands equality of but not identity of opportunity. All grades of mental and physical capacity should have an equal chance for their fullest development.

A mere glance at the conditions of men and women will be sufficient to prove the point if we accept democracy as a fact and attempt to live up to its implications. Some are capable of a certain development, but are not capable of a higher development. Some find their means of expression through written and printed symbols and some through work with their hands in wood, stone, iron and fabrics. Some find joy in work which to others is drudgery. The work of the world must be done and "the varied kinds of labor will, as now, differ in the degree of talent required to perform them."¹ But as Ward further points out "the natural differences of intellectual capacity will be great enough to furnish each vocation with laborers who are capable of performing its duties but not capable of performing those of higher grades. The adaptation must necessarily be more complete than now, when sages do menial service and fools rule empires. The fitness of things will then reach its highest stage

¹Ward, *Dynamic Sociology*, Vol. II, p. 601.

of completeness and servants, as well as poets, will be born, not made." Mediocrity being the normal state of the human intellect "the real need is to devise the means necessary to render mediocrity, such as it is, more comfortable."²

The ideal school will therefore take account of the possibilities of training the many intellects of infinite variations in such a way as to make their possessors more effective factors in economic, social and civic affairs.

The ideal school will know no limits. It will begin with the earliest possible moment and will continue throughout life. It will make of boys and girls continuous students when they have left the school and have gone to work in stores, offices, factories, workshops, forests, on the farms or in the professions. It will be a constant guide for experience and by using the data of experience, it will enlarge the common life by giving a basis upon which the crudest intellect may work. Blind experience profits nothing, but experience touched with knowledge forms the Aladdin lamp for the mass of common people. The school can not afford to ignore the effective and permanent results of experience guided by education in its beneficial effects upon the human race in making a more "comfortable subsistence" and a fuller life.

When we have said that the school should be uni-

² Ward, *Dynamic Sociology*, Vol. II, p. 600.

versal we have directly set up the requirement that it shall be at public expense and under public management. Democracy demands that a matter so vital to all the people shall be under the control of the people. Moreover private enterprise or philanthropy would not supply the universal need. Private enterprise seeks profit and profit can not be found in universal education; philanthropy seeks out the exceptional need, and the mass of people whose education can not be made profitable, or who do not make a special appeal, are left out.

Private enterprise in education, by seeking profit, is baneful in its influence. Witness the low estate of medical education when schools were operated for profit a few years ago. They gave enough instruction to get the students' money, but not enough to satisfy the requirements of society. Or witness the great numbers of so-called "business colleges" which give a commercial education in from one to six months. They are helpful, to be sure, but they do not give sufficient education to satisfy the requirements of business or of the workers. Public management and control of the ideal educational system are necessary also, to prevent the overcrowding of some vocation and the undermanning of others, which is so pronounced in our day. By offering many-sided opportunities the youth are led into many suitable vocations. Private enterprise, by offering a chance in a few vocations which it

finds profitable to teach, encourages too many to enter those vocations. Thus the chance afforded to young men a few years ago to study medicine in a privately owned college coupled with a lack of facilities to study some other vocation, perhaps more suitable to them, led to the attempted training of too many poor physicians. Private, philanthropic and public facilities afforded for the study of law, pharmacy and engineering have accentuated the vicious distribution to the disadvantage of those professions and the public.

The implication is plain that anything short of universal education is both undemocratic and unsocial. Society should not extend opportunities to some without extending equal if not identical opportunities to all. Since universal education is an absolute requirement for equal justice and can not be acquired under a private system, it becomes the duty of the public to take charge of the entire educational system in order that the ideal shall be approached and social stability maintained.

The part of the school in the care of the individual has been constantly increasing and will doubtless continue to increase until eventually the total care of youth will be under the guidance of the school from the time they enter until they have established themselves reasonably well in the work of the world. The ideal educational system accepts the responsibility for such guidance without flinch-

ing. Indeed, it seeks the responsibility by a close analysis of the educational needs of all persons in all walks of life.

Recognizing the need of a scientific approach to the problem of educating all of the people the school surveys the field of the vocations to learn the possibilities of education in each and to gather the data upon which to build courses which shall help in the practical solution of the vocational problems of workers. It will look into the processes of agriculture to determine the place of education in that vocation. It will strive to learn what the farmer needs to know which experience does not supply and will devise practical methods to place its findings within the farmer's reach. The school will analyze trades, industries and commercial pursuits to ascertain what the worker needs in skill and knowledge; how far that knowledge and skill can be obtained in commerce and industry; and how far the schools can supply that knowledge and skill that the worker needs for thorough efficiency. The school will also learn the conditions of success in trades, industries and commercial pursuits; the economic rewards offered; the conditions of entrance; the physical requirements for success and the occupational hazards from accident and disease. It will chart the "blind alleys" of commerce and industry and will post a sign "no thoroughfare" upon those which do not promise a successful career. It will

not let young people enter uneconomic employment or "blind alleys" without fair warning. The ideal school will also analyze the processes required in making and maintaining the home and will see wherein the home-makers need training to realize the fullest possibilities of living under modern economic and social conditions.

The ideal school will do more than merely analyze the existing conditions. It will keep abreast of the discovery of new truth and new applications of existing knowledge. It will learn of the latest improved farm machinery, the latest office devices; the most up-to-date shop machinery and tools; the labor-saving devices in household equipment; and the economic and social changes which affect the people. It will be a medium through which progress may be a reality to all the workers in our common life.

The school will provide for the total care of the educational welfare of youth. As expressed by Professor Henry Suzzalo in the *Report of the Committee on Economy of Time in Education*, "This total care of the individual will include an efficient and economical system of education, the mechanism of which will prepare for three related but distinct types of adjustment." There will be:

1. A series of general, cultural, liberal or common schools—elementary, secondary and collegiate—the function of which will be to train men for the

maintenance of a progressive civilization through efficient membership in the common human institutions in which each man must inevitably be a unit of influence;

2. A series of more or less specialized vocational schools extending from trade to professional education—the purpose of which will be to acquaint men with the influences, appreciations and activities that are essential to personal working power in a chosen occupation;

3. A varied series of cooperations between school and through institutions which will guarantee an apprenticeship under actual living and working conditions, the supervision of which is to be dominated by educational ideals and controls that guarantee that the growth of the apprentice shall be a more important consideration than his commercial productiveness.

To this should be added a fourth form of education akin to the third which is cooperative with the economic institutions of men after the period of total care has passed, consisting of those various forms of cooperation through evening courses, correspondence study, extension work and vocational reading which seek to make education a life-long process by supplementing experience of the worker with useful knowledge.

The child enters the ideal school at six years of age and all of the time of all of the children for six

or eight years is devoted to that fundamental education which is necessary to establish sound "habits, attitudes and ideals"; to give the minimum of necessary information for the mass of youth; and to develop "power, inspiration and ability to go it alone." In this period all youth should acquire the fundamental tools of knowledge—reading, writing, arithmetic and composition—and become acquainted with the data of their environment. By proper correlation they should learn simple elements of chemistry, biology and physics; simple business practises; simple art; music; elements of hygiene and methods of physical training; and some elements of civics and social economics; handwork in the form of manual training, domestic science for girls, and the elements of agriculture should be woven in the right proportions into the work of the school.

The ideal school will make provision for the exceptional child, both the one who is backward and the one who can proceed more rapidly. The "lock step" will be broken up and an effort will be made to bring out the latent talents of the pupils. By this means, the interests of pupils will be aroused, and vocational tendencies or aptitudes discovered.

This period of education being the one when all of the children are subject to the influence of the school, it follows that the best efforts should be put forth to transmit to all as much of "the heritage of

the race" as they are capable of assimilating. Democracy demands that the best that can be offered should be placed at the disposal of youth in this period of universal attendance.

At the close of the period of preliminary education provision will be made in the ideal school for a widely diversified system which will offer the kinds of education by which the whole people may profit. At present, there is ample chance for youth to go to high school or college to get a broader general education or to enter a vocational school leading to a profession. Technical and commercial high schools with broad curriculums are broadening the chance for preparation in wider fields of activity and are rapidly displacing the classical high schools. It is a move in the direction of the ideal school which seeks to add to the present facilities many different kinds of vocational schools which prepare youth for useful employment while giving them broad educational foundations. The school should recognize the wide differences in mental and physical capacity and give a chance for preparation to all alike. The school will therefore provide for as many vocational schools as an analysis of conditions will show to be needed and will provide general foundation courses leading to many vocations for which it does not seem feasible to prepare directly.

The third type of education required in a school which seeks to care for the whole educational

welfare of youth will be a diversified scheme of co-operation with the enviroing world of industry, business, farm and home. By a broad educational curriculum including vocational schools and courses a larger proportion of youth will be directly cared for by the school. But for reasons, apparent to all, many children will leave school as soon as the compulsory period has passed. These children have heretofore been left to their fate by the schools, but the ideal school does not shirk the responsibility of meeting their needs. It seeks first to find out if ways may not be devised to help the pupil to remain in school. Failing in that it seeks to cooperate with a suitable employment by which the pupil may work a part of the time and still continue a part of the time in school—the ideal arrangement being alternately, a week in school and a week at work. If this arrangement fails, the school permits the child to go to work, but requires that the employer give a few hours off each week, during which the child must come back to take regular courses in the schools. This care by the school will be compulsory up to eighteen years of age. Two types of training are there provided; first, the continuation school in which the general education of the youth is continued to enlarge his civic intelligence and to give vocational direction; second, the trade extension courses in which the training is intended to supplement the vocational work and prepare for greater

perfection in it. The first is for those who are at work in "blind alley" jobs or who have not chosen a permanent vocation; the second is designed for those who have chosen a vocation and desire to master it fully. The school recognizes the futility of trying to teach a vocation to a boy in a few hours a week, but recognizes the tremendous value of a few hours of supplementary education to the youth already engaged in a promising vocation. It would attempt to enlarge the general intelligence and give a vocational bent to the youth in an unpromising job and it would seek to lead such youth into more skilled employments where trade extension courses would function. To the girl in industry it would give equal care for a supplementary education for efficiency, but would recognize the larger aspects of the girl's life as a home-maker and would require regular courses of instruction to enable the mass of girls who are in automatic employments to get the best preparation possible for their permanent vocation.

If the vocational schools and part-time arrangements have been properly developed the ideal school will be in a position to work effectively with men and women after they have passed beyond the time of school attendance. The spirit of self-reliance brought about by self-education will carry the inquiring workers into the evening school, extension work, correspondence study, or intelligent reading.

Many will find the means thereby to enlarge their knowledge and increase their skill in their chosen vocation. Many will find a means of refitting themselves to their environment by finding a way out of an unpromising vocation and into a congenial employment. All will benefit by instruction which keeps them abreast of the times in their vocation, and civic efficiency will be a splendid by-product.

The ideal school system which brings all of the children and the whole of each child to school from six to fourteen; which provides for a complete system suitable to all whether they go into the ranks of a profession or a trade; which extends efficient education compulsorily to all youth who have gone to work until they are eighteen years of age; and which gives the opportunity for an effective continuation education to all persons throughout life, will assuredly give results which will be shown in personal efficiency and the character that goes with it; physical fitness with its promise for future generations; more efficient industry and agriculture with their results in national welfare; conservation of vital and natural resources; thrift in management of personal and public business; a stable social democracy in which all shall be equal in opportunity; and a culture which shall be a reality to all.

THE END

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- American Medical Association.
- American Posture League.
- Association of American Agricultural Colleges and Experiment Stations.
- Association of Southern States Rural School Supervisors.
- Banker Farmer.
- Chamber of Commerce of the United States.
- Eastern Art and Manual Training Teachers' Association.
- Eastern Commercial Teachers' Association.
- Farmers' National Congress.
- General Federation of Women's Clubs.
- International Congress of Farm Women.
- International Dry Farming Congress.
- National Association of Corporation Schools.
- National Association of Manufacturers.
- National Child Labor Committee.
- National Commercial Teachers' Federation.
- National Conference on the Education of Dependent, Truant, Backward and Delinquent Children.
- National Congress of Mothers and Parent Teachers' Association.
- National Dry Goods Dealers' Association.
- National Education Association.

National Education Association, Department of Superintendence.

National Farmers' Grange.

National Metal Trades Association.

National Society for Broader Education.

National Society for the Promotion of Industrial Education.

National Vocational Guidance Association.

Society for the Promotion of Engineering Education.

Southern Commercial Congress.

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Vocational Education Association of the Middle West.

Western Drawing and Manual Training Association.

Woman's Educational and Industrial Union (Boston).

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